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Abstract

The International Standard Classification of Occupations was developed to provide a systematic basis for presentation of occupational data relating to different countries in order to facilitate international comparisons. A second objective was to provide a system which developing countries could use in formulating their national occupational classifications. Occupations are classified at the major group level, minor group level, and unit level. The basic principle of classification is the type of work performed and represents broad fields of work rather than specific types of work. The minor groups and unit groups provide summary classifications suitable for organization and presentation of statistical data, such as those derived from manpower inquiries and population censuses. The more detailed classification, which has been developed by the International Labour Office, subdivides the unit groups into occupations or occupational categories bearing five-digit code numbers and is intended to serve such purposes as the organization of employment placement office records. (Author/CH)

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REVISED EDITION 1968

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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PREFACE

This volume, *International Standard Classification of Occupations* (revised edition, 1968), replaces that issued in 1958 and reprinted in 1962.

The history of the development of the International Standard Classification of Occupations (ISCO) reaches back some 20 years. The first concrete step towards its establishment as a basic tool for organising occupational information for international purposes was the adoption of a provisional classification (comprising nine major groups) by the Seventh International Conference of Labour Statisticians, which was convened by the International Labour Organisation in 1949. The publication of the first edition of the *International Standard Classification of Occupations* in 1958 was the culmination of a very difficult task which could be accomplished only through a long and intensive international effort. Many governments contributed by lending expert staff to the I.L.O. and helping in many other respects. International organisations also gave valuable assistance.

A similar collaborative effort marked the work on revision of ISCO, which began in 1964 with the dispatch of a questionnaire to governments and other interested parties, requesting their views and recommendations regarding revision of ISCO. Many valuable suggestions were received and many have been implemented in this edition.

With a view to issuing an improved and up-to-date ISCO in advance of the 1970 round of population censuses, preliminary draft proposals were prepared by the I.L.O. in 1965 and submitted to a meeting of experts. After further development and refinement the draft revised ISCO proposed by the experts was submitted to the Eleventh International Conference of Labour Statisticians, 1966. The Conference introduced some further improvements and adopted the list of major, minor and unit groups given in the present volume.

ISCO has been developed to provide a systematic basis for presentation of occupational data relating to different countries in order to facilitate international comparisons. A second objective, related to the first, is to provide an international standard classification system which countries may use in developing their national occupational classifications, or in revising their existing classifications, with the aim of achieving convertibility to the international system.

The minor groups and unit groups provide summary classifications suitable for organisation and presentation of statistical data, such as those derived from manpower inquiries, including population censuses. The more detailed classification, which has been developed by the International Labour Office in the form of a subdivision of the unit groups into "occupations" (or occupational categories bearing five-digit code numbers), is intended to serve other purposes, such as the organisation of records of employment placement offices.

Since many countries have made use of ISCO (1958 edition), either for reporting of occupational data or as a basis for development of national occupational classification systems, a conversion table has been included in the present edition. This table shows unit groups of ISCO 1958 in the left-hand column and on the right the corresponding unit groups of the revised ISCO. The main structural changes made in revising the classification have also been referred to in the Introduction below, in the "Notes on Characteristics of Occupational Groups".

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INTRODUCTION

STRUCTURE AND USES OF THE CLASSIFICATION

The International Standard Classification of Occupations (ISCO) provides a systematic classification structure covering the occupations of the whole civilian working population. The classification structure has four levels, providing successively finer detail, as follows: major groups (8), minor groups (83), unit groups (284) and occupational categories (1,506). The classification system is completed by definitions given for each of the 1,881 titles.

The decimal method of coding adopted in this system identifies each class into which a coded and defined occupational category fits; for example "typist" is found in major group 3—*Clerical and related workers*; minor group 3-2—*Stenographers, typists and card- and tape-punching machine operators*; in unit group 3-21—*Stenographers, typists and teletypists*; and in occupational category 3-21.40—*Typist.*

The major groups comprising ISCO, together with the supplementary major category (without a code number) to cover Armed Forces, are as follows:

Code No.	Title
0/1	Professional, Technical and Related Workers.
2	Administrative and Managerial Workers.
3	Clerical and Related Workers.
4	Sales Workers.
5	Service Workers.
6	Agricultural, Animal Husbandry and Forestry Workers, Fishermen and Hunters.
7/8/9	Production and Related Workers, Transport Equipment Operators and Labourers.
X	Workers Not Classifiable by Occupation.
–	Armed Forces.

A list of major, minor and unit group titles follows this Introduction. The full list of titles classified in code order is given towards the end of the volume.

Use as an International Statistical Standard

The major, minor and unit groups constitute the classification of occupations approved by the Eleventh International Conference of Labour Statisticians (Geneva, 1966) as an international standard for statistical purposes.

The objectives which this statistical standard has been designed to serve are—*(a)* to provide a model for countries developing or revising national classifications for use in the 1970 round of population censuses and in other statistical compilations of occupational data; *(b)* to promote the international comparability of statistics; *(c)* to provide a standard list of occupational groups for international uses, including the exchange of occupational data between countries and the reporting of national occupational data for international publications. In the latter connection, it is specified in "Principles and Recommendations for the 1970 Population Censuses" [1] that each country should report population census data classified according to at least the minor groups of ISCO.

Other Uses of ISCO

Since, in addition to providing summary or "statistical" classifications in the form of minor and unit groups, ISCO classifies civilian occupations in considerable detail—i.e. in over 1,500 separate categories (referred to below as "occupations" or " five-digit" coded groups)—the ISCO system can be used for various other international purposes. For instance it can serve to identify in different countries comparable occupational categories in connection with programmes of international migration of workers or international programmes of vocational training. In general, since ISCO contains definitions of all its component categories, the ISCO system serves to facilitate communications between governments, or between persons in different countries, each party being able to use it as a common basis of reference.

Development of National Classifications

Some countries, particularly among those in the early stages of economic development, do not yet have their own occupational classification system. Some use, with or without adaptation, the classification of another country, or have attempted to use ISCO. This is not satisfactory, as a rule, since each country needs a classification adapted to its own particular situation and requirements. A national classification should distinguish separately all occupations of significant importance in the country. Such occupations will frequently be concealed in a broader category in an international classification such as ISCO.

In many cases, in developed as well as in developing countries, the classifications at present in use are inefficient because they consist solely of a list of selected occupational titles, with code numbers but without definitions of the scope of each title. There is much room for error in applying such classifications as the user is frequently uncertain where to classify particular occupations.

ISCO can serve as a very useful starting point in constructing national classification systems. Each ISCO group, its definition and title can be examined and compared with available or specially collected information relating to the functions, duties and tasks of the relevant jobs in the country concerned. In most cases it will be possible to develop in this way a satisfactory national occupational classification system comprising a systematic structure of titles and codes with national definitions of the different titles. A considerable amount of work is necessary, but several objectives can be pursued simultaneously—namely to produce a standard national classification adapted to statistical applications, which is also readily convertible to ISCO, and to develop one or more detailed classifications consistent with the standard national occupational classification system but specifically adapted to the needs of the national employment placement service and of other public agencies in the country.

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[1] United Nations: Statistical Papers, Series M, No. 44 (New York, 1967).

In the great majority of cases it should be possible to match the ISCO occupational definitions with national occupational categories which relate to corresponding segments of work, in any case as regards most of the elements of the work performed. The correspondence between ISCO and a particular national occupational structure will be very close in respect of some occupational groups, the type of work performed in the country concerned being almost identical to the descriptions given in the definitions of the relevant ISCO groups. In other cases, since each national occupational structure has its own special characteristics, related to such factors as natural environment (climate, etc.), natural resources exploited, level of economic development, technology and capital equipment employed and work organisation in different enterprises, only the principal tasks performed, or the majority of them, may match those defined in the relevant ISCO groups.

It is recognised that for certain purposes, some ISCO five-digit occupations may need to be split into two or more separate categories in a national classification. In particular, some occupations are included in residual groups of ISCO but are of special importance in the national economy and may have to be listed as separate items. Conversely, some ISCO occupational categories are very restricted in scope and refer to specialisations which are non-existent, or virtually non-existent, in some countries (e.g. 0-12.80—*Nuclear physicist*; 0-42.40—*Ship pilot*; 6-22.50—*Rice farm worker*). In such cases, the occupation may be conveniently placed in a residual group in a national classification, if desired.

In order that ISCO can serve the purposes outlined above, an effort is called for on the part of all countries to ensure that, at least in their principal national classification, occupational groups which correspond as closely as possible with those of the international system can be identified. This does not mean that countries should actually adopt ISCO for direct use; the main aim, convertibility, will be achieved in a very large measure if occupational groups in the national classification can be rearranged to conform with ISCO groups, or with combinations of two or more ISCO groups. When revising national occupational classifications, countries will have the opportunity of improving convertibility between their national classification and ISCO.

BASIS OF CLASSIFICATION OF OCCUPATIONS

The basic principle of classification according to type of work performed is applied in ISCO for grouping occupations, but the interpretation to be placed on similarity in type of work performed depends on the particular occupational field considered. In practice, the principle is easier to apply at the level of occupations than at the unit group or minor group level. The major groups represent very broad fields of work rather than specific types of work performed.

Minor Groups

As a rule, separate minor groups are provided only where a relatively large number of workers are involved and, consequently, in most cases these groups also cover a broad range of occupations. There are 83 minor groups in the revised edition of ISCO compared with 73 in the first edition, the increase being accounted for mainly by some expansion of detail in major groups 0/1, 3, 4 and 5.

Since the whole range of vocational activities of civilian workers, whether in an industrialised or in a developing economy, is covered by the 83 minor groups of ISCO, the common occupational characteristics which link together the different unit groups within a minor group are frequently of a broad or general nature. In addition, the minor groups have been designed to reflect, in large measure, the conventional broad groupings which are typical of classifications in current use for statistical purposes, including censuses of the population.

Unit Groups

The remarks above also apply, to a large extent, to the unit groups, since the whole range of occupations is covered in 284 groups. Nevertheless, a good number of unit groups have a relatively narrow scope, especially in major group 0/1—*Professional, Technical and Related Workers.* Refinement of the unit groups, which numbered only 201 in the first edition, has been an important feature in the revision of ISCO (see below: Notes on Characteristics of Particular Occupational Groups). To obtain an adequate analysis of the occupational make-up of a well-developed economy (even when cross-classifications are made according to branch of economic activity) requires classification of workers at least in the detail of the unit groups.

A unit group in ISCO is a group of occupations related to each other by similarity of the characteristics of the work they entail. It therefore has a certain homogeneity and the occupations it covers are more closely related to one another than to occupations classified in other unit groups. Where a minor group contains a residual unit group, the latter as a rule does not exhibit to the same degree as the other unit groups the characteristics of homogeneity and of similarity of work performed in the different occupations comprising the group.

At the unit group level of subdivision the close relationship between types of work performed in the component occupations is reflected in different ways. For example, in the fields of the physical sciences and life sciences, occupations concerned with the same basic subject-matter have been brought together, as in the cases of *Chemists* (0-11), *Physicists* (0-12), *Biologists, zoologists and related scientists* (0-51), and *Agronomists and related scientists* (0-53). On the other hand, all physical science occupations at the technician level are grouped together in one unit group on the view that the kind of work performed is much the same and distinction by subject-matter is unnecessary. Life science technicians are similarly grouped. The same applies to teaching occupations, which are distinguished by level (university, secondary, etc.) and not by subject-matter, for purposes of unit groups.

Some unit groups, such as 0-41—*Aircraft pilots, navigators and flight engineers,* comprise the occupations of workers who work together and whose functions are complementary. In forming unit groups, various other criteria have been employed in the application of the basic principle of classification according to work performed, for instance executing similar processes (e.g. 7-28—*Metal platers and coaters*); operating similar equipment (e.g. 7-43—*Filter and separator operators*; 9-85—*Motor vehicle drivers*); performing similar services (e.g. 5-32—*Waiters, bartenders and related workers*); fabricating and repairing similar articles (e.g. 8-42—*Watch, clock and precision-instrument makers*).

The unit groups are intended for practical use and therefore account must be taken of the limitations imposed by practical procedures of data collection in censuses and many other types of inquiries. In this connection it should be noted that the information available concerning workers to be classified very frequently does not cover such characteristics as work experience, vocational training, level of performance and supervisory responsibilities in present job, and level of formal education. However, experience has shown that there are large variations in these respects, as well as in others, among workers who are clearly performing the same or a closely related type of work and therefore should be classified in the same occupational group.

Occupations

An "occupation", for purposes of ISCO, is the narrowest occupational category (i.e. the smallest segment of work) which is specifically identified in the classification system. Each occupation has a five-digit code number, a title and a definition which describes the general functions and the principal duties and tasks of the workers classified under the title and code number concerned.

These definitions identify a type of work but not specifically the individual worker. The definition of an occupation covers various "jobs" or "positions" which are held by individual workers who perform one or another of the different possible combinations of the tasks described. Workers whose principal tasks are identical may be considered as having the same type of "job", but the workers in a particular establishment may be further subdivided according to "positions" for purposes such as fixing individual rates of remuneration within the common scale for the job. "Positions" are distinguished from one another by minor differences in duties, level of responsibility for supervision and other particularities of the work to be performed. The management and supervisory staff of the individual enterprise decide, within certain limitations of a technical or legal or contractual nature, how tasks are to be distributed among its workers, i.e. determine the division of labour. Consequently, classification according to "job" or "position" is a matter for the particular enterprise and goes beyond the scope of a classification according to occupation.

The number of occupations identified, coded and defined in the revised ISCO, namely 1,506, is somewhat greater than in the first edition (1,345) because some occupations which were formerly covered in residual categories have now been distinguished separately and certain other categories have been subdivided. In particular, to meet widely felt needs, more detailed classifications have been provided for teachers and agricultural workers, while subsidiary titles appearing in the first edition (e.g. under "sheet metal worker") have now been given separate code numbers, and new categories have been introduced for certain types of supervisors and for general foremen.

As mentioned earlier, a particular country may find it useful to refine further the list of occupations given in ISCO. However, there are limits to the usefulness of providing further detail in an international classification since it must retain sufficient flexibility to be able to lend itself to the different circumstances in the various countries. In addition, ISCO is not intended to replace national classifications which may need to reflect specific national requirements.

TITLES, DEFINITIONS AND CODES

Titles

In composing the titles of the occupations and groups in ISCO account has been taken of common English usage. In many cases, however, the wide variations in national terminology concerning occupations have made an arbitrary choice unavoidable. An attempt has been made to find titles which reflect the content of the occupation or group and, so far as possible, employ terms which are widely understood in the different regions of the world. Nevertheless, to identify positively the scope of an occupation or group and the types of workers covered, the corresponding definition must be consulted.

Definitions

The definition of an occupation, bearing a five-digit code number, is given in the form of a short opening statement describing the general functions of the occupation followed by an enumeration of the main tasks performed. The enumeration of tasks is replaced in some cases by a cross-reference (usually a reference to the definition of the relevant "general" occupation). Important exclusions are noted, if considered necessary, but exclusions noted under the relevant minor or unit group definition should also be consulted by users of ISCO. The definition may mention possible variations in the way in which the work is performed. Frequently reference is made, in the form of a statement beginning with the word "May", to certain tasks which sometimes are also performed by workers in the occupation but are not necessarily considered as inherent in that occupation.

Unit group definitions begin with a brief summary statement, followed by a recapitulation of the general functions of the different occupations which comprise the unit group. Minor group definitions as a rule recapitulate the summary opening statements of the unit groups, but frequently in further reduced form to avoid unnecessary repetition. On the other hand, a new feature introduced into the revised edition of ISCO is the presentation, as part of the minor group definition, of a list of the titles of the component unit groups.

Major groups are not defined, strictly speaking, but a brief general description of the types of work covered by the major group is given, followed by a list of the titles of the minor groups which it comprises.

Scheme of Coding within Unit Groups

Code numbers of five digits ending in .10 are reserved for "general" occupations within unit groups. Where there are two "general" occupations in the same unit group use is made also of a code number ending in .05. In principle, these refer to occupations requiring performance of a broad range of tasks (though not necessarily continuously), including the tasks described in the definitions of the other occupations in the same unit group. The workers in these occupations are normally versatile and have had considerable experience and training in the field of work concerned; they are often working foremen or have other supervisory duties.

A code number of five digits ending in .10 is also used where the occupation is the only one within the unit group and therefore has the same scope as the unit group, thus: 3-52.10—*Postmaster* (unit group 3-52—*Postmasters*).

Code numbers of five digits within the range of codes ending in .11 to .89 are used to designate specific occupations, other than "general", within a given unit group. Depending on the number of occupations to be accommodated, code numbers are selected at intervals of ten (ending in .20, .30, .40, etc.) or at intervals of five (ending in .20, .25, .30, .35, etc.). In a few instances it has been necessary to use smaller intervals. Additional occupations can always be inserted; the codes to be allocated can be chosen from among the numbers not already used. Occupations covered in ISCO by a "residual" category (which has a five-digit code number ending in .90) may thus be separately identified if required for particular applications of the classification.

Residual categories have titles beginning with the word "Other", which is followed by the unit group title (generally excluding the words "not elsewhere classified"), and they always have a code number ending in .90 (e.g. 3-39.90—*Other bookkeepers, cashiers and related workers*). Such residual groups cover all types of work which either are not usually performed by the workers classified in the preceding part of the unit group or correspond with only a small part of one of the occupations classified in the preceding part of the unit group. For example, 3-39.90 (mentioned above) includes "rent collector" and "invoice clerk"—which could be separately identified, defined and given individual five-digit codes if desired. Also included are "timekeeper" and "change-booth cashier". The functions carried out respectively by a timekeeper, or by a change-booth cashier, for example, are frequently only a small part of the broader functions of, respectively, a payroll clerk (covered in 3-39.30—*Wages clerk*) or of a "cashier" such as 3-31.40—*Bank teller*, 3-31.30—*Office cashier* or 3-31.60—*Cash desk cashier*.

EXPANDED ALPHABETICAL LIST OF TITLES

To assist users of ISCO to find the appropriate classification of different occupational specialisations, an expanded alphabetical list of titles is provided. Although several thousand titles are mentioned, these represent only a small percentage of all the occupational terms in use in the world. In most cases, however, the user will easily find the appropriate place in the classification for a particular occupation. Useful indications will also be obtained, in many cases, if the user turns to the Classified List of ISCO Titles and Codes which follows the definitions. It presents, in numerical sequence according to their code numbers, all the formal titles of ISCO—i.e. titles of major, minor and unit groups and of occupational categories—for which definitions are provided in the earlier part of the volume.

To be able to make the best use of the Expanded Alphabetical List of Titles and Classified List the user should also consult the parts of the Introduction which outline the structure of the classification and its underlying principles and give additional explanatory information regarding the way in which certain types of occupations are classified according to ISCO.

Sometimes the user will wish to determine the appropriate place in the classification for an occupational title that is not specifically listed in the Expanded Alphabetical List of Titles. The following examples illustrate the use of the Expanded Alphabetical List, in conjunction with the Classified List and the definitions of ISCO titles, in such cases. The question arises as to where "Rating, merchant marine" is to be classified. This title is not indexed under M or R. It is clearly associated with transport by sea and with ships, and it calls to mind such occupational titles as "seaman", "sailor" and "deck-hand". A search shows the following titles appearing in the Expanded Alphabetical List: Able seaman, 9-81.30; Ordinary seaman, 9-81.40; Seaman, able, 9-81.30; Seaman, ordinary, 9-81.40; Sailor (able seaman), 9-81.30; Sailor (ordinary seaman) 9-81.40; Deck-hand, 9-81.40; Ships' deck ratings, barge crews and boatmen, 9-81; Transport equipment operators, 9-8.

In the Classified List, under unit group 9-81, ISCO provides the following categories:

9-81.20—*Boatswain.*
9-81.30—*Able seaman.*
9-81.40—*Ordinary seaman.*
9-81.90—*Other ships' deck ratings, barge crews and boatmen.*

The next unit group 9-82—*Ship's engine-room ratings*, covers ship's fireman, ship's oiler and greaser, etc.

Therefore, "Rating, merchant marine" would normally be classified appropriately in minor group 9-8. However, since "Rating, merchant marine" is a vague term, which describes a *status* rather than an occupation, it is not possible to decide without further information about the worker concerned whether he is classifiable in 9-81 or in 9-82.

Another example illustrates the use of definitions in conjunction with the Expanded Alphabetical List. The question arises as to where "Medical bath supervisor" is to be classified. Entries indexed under M include Medical assistants, 0-62, those under B Bath attendant, 5-70.70. The definition of the latter does not mention medical baths, but merely states that the worker does simple massage. Moreover, the Classified List shows that unit group 5-70, to which the definition belongs, does not contain any medical personnel, but refers to hairdressers, barbers, beauticians and related workers. As regards unit group 0-62, it is clear from the definition that medical bath attendants are not included among medical assistants. If we consult the Classified List once again we can see that in the same minor group, 0-6/0-7—*Medical, dental, veterinary and related workers*, there is a unit group 0-76—*Physiotherapists and occupational therapists.* Included in the latter are the following: 0-76.20—*Physiotherapist*; 0-76.30—*Occupational therapist*; 0-76.40—*Masseur.*

Since medical baths are a form of therapeutic treatment, it would seem likely that the work performed by "medical bath supervisor" would be covered in 0-76.20. Reference to the definition of 0-76.20—*Physiotherapist* shows that among the tasks performed is to treat patients, according to doctor's prescription, by giving them therapeutic baths and other forms of hydrotherapy. Hence, medical bath supervisor is classified in 0-76.20.

There are three kinds of entries in the Expanded Alphabetical List:

(a) the formal titles of ISCO (as given in the Classified List and in the definitions);

(b) inversions of the former (e.g. title: Able seaman; inversion: Seaman, able);

(c) selected additional occupational titles identified by an asterisk to indicate that they do not appear in ISCO proper and as a reminder that the same occupational title may be used to refer to different occupational specialisations in different countries; these titles are not formal ISCO titles and should not be used to report data classified accord-

ing to ISCO. Moreover, the user referring to a title in the Expanded Alphabetical List should also consult the ISCO definition bearing the same code number.

NOTES ON CHARACTERISTICS OF PARTICULAR OCCUPATIONAL GROUPS

The following notes, arranged by major group order, are intended to throw light on the nature of certain groups and to facilitate the task of the user of ISCO. References are made to the structure of the various major groups, to the rules for classification of certain types of occupations and to important revisions made since the 1958 edition of ISCO. The user of ISCO who wishes to classify occupations should, however, also refer to the more detailed information given in the definitions of occupational groups appearing later.

Attention is drawn to the revised arrangement of major groups of ISCO since the 1958 edition. Former major group 5—*Miners, quarrymen and related workers* has been incorporated in revised major group 7/8/9—*Production and related workers, transport equipment operators and labourers.* Former major group 6—*Workers in transport and communication occupations* has been split up, part being transferred to revised major group 3—*Clerical workers* becoming revised minor groups 3-5 to 3-8, and most of the remainder passed to revised major group 7/8/9, becoming revised minor group 9-8. Former major group 9 has become revised major group 5—*Service workers,* while former major group 4 has become revised major group 6—*Agricultural, animal husbandry and forestry workers, fishermen and hunters.* Since two numerals are now used for major group 0/1—*Professional, technical and related workers,* the former major groups 1, 2 and 3 have been renumbered 2, 3 and 4 respectively.

A Conversion Table is given in this volume, preceding the Expanded Alphabetical List, to show the disposition of revised unit groups of ISCO according to the minor and unit group structure in the 1958 edition.

Major Group 0/1: Professional, Technical and Related Workers

This major group contains the greater part of the highly educated and trained personnel who carry out professional functions in scientific, engineering, medical, legal, teaching and other fields. Also included are technicians who generally work under the supervision of the more highly qualified professional workers and perform allied functions. In addition, this major group covers occupations such as those of creative artists, performers and writers, which call for the exercise of individual talents and, in many cases, for creative work.

Those performing certain functions covered in this major group may be required by the laws and regulations in force in a particular country to possess a university degree, diploma or other specified qualification. In ISCO, however, qualifications (including educational attainment) have not been used as a basis for classification by occupation: performance of particular duties and tasks takes precedence over possession of formal qualifications. Nevertheless, in the light of local conditions it may be desirable when using the ISCO system for certain specific purposes to also investigate whether the worker possesses the national standard qualifications for a particular occupation before deciding on the category in which he should be classified.

It should be noted, however, that many workers with professional qualifications work in occupations where such qualifications are not necessarily required: for example, graduates in law, physical science, medicine, economics or engineering may work as manager, government administrator, technical salesman or newspaper editor and should be classified, according to ISCO, on the basis of the work actually performed.

As a general principle, workers undergoing training (as apprentices or learners) are classified with the workers in the occupation being learned, but this rule is not applied to worker-trainees who are in a formal learning status with an employer practising a profession such as architecture, law, pharmacy or accountancy. Many eventually become "technicians" but do not complete the full theoretical courses needed to qualify for practising on their own account in a profession. Hence they are not classified with fully qualified professional workers but in another occupation which is closely related to that of their employer. For example, trainee nurses are not classified with professional nurses in unit group 0-71; instead they are classified in unit group 0-72—*Nursing personnel not elsewhere classified.* Similarly, articled clerks in lawyers' offices are not classified as jurists but in unit group 3-93—*Correspondence and reporting clerks*, and articled clerks in accountants' offices in 3-31—*Bookkeepers and cashiers*, not among professional accountants.

In order to ensure that users of ISCO will distinguish clearly between nurses performing nursing functions requiring full professional training and other nursing personnel, the title of the unit group includes, as an exception, the word "Professional"—thus, 0-71—*Professional nurses.* For the same reason, the title *Professional midwives* has been used for unit group 0-73. It is clear, however, that a large number of other unit groups in major group 0/1 refer to workers who, as a rule, have undergone professional training in order to be able to perform their work and therefore could equally be described as "professional".

Teachers' occupations are classified in three levels—primary, secondary and third level. The last covers all teaching occupations concerned with instruction at post-secondary level, with the exception of vocational training in manual crafts (such as those covered by apprenticeship and on-the-job training—see below: Notes on Classification of Supervisors, Foremen, Apprentices and Instructors).

Irrespective of the time actually devoted to teaching by a professor whose principal vocational interest is educating university students, the appropriate classification is in 1-31—*University and higher education teachers.* Not all university professors give courses of lectures but they will as a rule organise courses, supervise lecturers, set examinations and perform other activities related to students' academic work. Also included in unit group 1-31 are private tutors or coaches who give extramural tuition to university students.

A part-time professor whose principal occupation is to practise his profession privately (e.g. as a medical doctor, engineer or lawyer) should be classified in the appropriate group along with others performing similar work.

Those who specialise in teaching in an educational establishment, whether public or private, such subjects as pictorial art, music, drama and dancing are classified in one of the unit groups of minor group 1-3, according to whether the institution is of primary, secondary or tertiary level.

Unit group 1-41—*Ministers of religion and related members of religious orders* includes only persons who perform sacerdotal or other functions closely related to religious worship. Persons in holy orders performing lay occupations such as teacher, nurse, librarian or editor are classified as such even though membership of a religious order may sometimes be considered as conferring on them a special status.

Changes made in the major group of 0/1—*Professional, technical and related workers* since the first edition of ISCO reflect the widespread interest shown in recent times in an improved classification of "high-level" manpower. In addition to the more detailed subdivision of *Teachers* (minor group 1-3), there is now presented a more detailed classification of engineering, medical, mathematical, legal and other categories of professional workers and also of associated technicians. It should be noted that the latter have been placed in the same minor groups as the high-level professional workers with whom they collaborate in their work. In the 1958 edition science and engineering technicians were classified together in one unit group (0-X9).

The scope of the major group has now been enlarged to include 0-4—*Aircraft and ships' officers*, 1-63—*Photographers and cameramen*, and 1-8—*Athletes, sportsmen and related workers.*

Major Group 2: Administrative and Managerial Workers

Major group 2 consists of occupations primarily concerned with the formulation of policy or laws and public regulations (legislation) and interpretation of government policy, combined with important decision-making in governmental and non-governmental organisations, and with the direction and management of organisations and enterprises to ensure that the desired policies and objectives are followed. This major group, therefore, has a comparatively narrow range. Moreover its scope is narrower than the above general description implies, since managers in some specific types of activity have been classified in other major groups in accordance with special conventions adopted in ISCO. These are noted below.

Also excluded from major group 2 are persons who have been given a title such as "manager", generally to give them prestige, although they are primarily carrying out professional, technical or craft functions coupled with some limited responsibility for supervision. Excluded, therefore, are workers responsible for lower-level supervision (e.g. foremen) and middle-level supervision, i.e. workers with supervisory functions but contributing little to policy formulation or to policy interpretation involving the making of important decisions. (See below: Notes on Classification of Supervisors, Foremen, Apprentices and Instructors.)

Elected or appointed officials whose principal occupation is performing legislative functions in central, provincial or local government councils are classified in unit group 2-01—*Legislative officials.* Members of legislative bodies who serve only in a part-time capacity and are principally engaged in another occupation are classified elsewhere, in the group appropriate to their main occupation. Administrators who advise governments on policy questions and plan, organise and direct government departments and agencies in policy implementation are classified in unit group 2-02—*Government administrators.* However, employees of central and local government and other public authorities whose principal tasks consist of performing professional work in engineering, geology, chemistry, agronomy, medicine, law, accountancy, economics, statistics, library organisation, actuarial science and other specialised fields are classified in major group 0/1 even though some of them may be responsible for organising and supervising the work of other staff specialised in the same disciplines.

Directors and managers of government or semi-government industrial and other undertakings (e.g. mines, factories, railways, hospitals, etc.) are classified in minor group 2-1 along with managers and directors of privately owned enterprises. It should be noted that the latter includes salaried managers, owner-managers (i.e. working proprietors) and also managers who receive, in addition to their salary and allowances, a share of the profits as part-owners of the enterprise.

Certain managers, however, are not classified in minor group 2-1. Farm managers are classified in minor group 6-0—*Farm managers and supervisors.* Other groups of managers excluded from minor group 2-1 are 4-0—*Managers (wholesale and retail trade)* and 5-0—*Managers (catering and lodging services).* Likewise, working proprietors of wholesale and retail establishments, catering and lodging establishments and farms are classified in minor groups 4-1, 5-1 and 6-1 respectively. Comments on these will be found below in the notes on the major groups concerned. Also classified elsewhere are working proprietors who exercise a professional, technical, craft or service function, whether employing assistants or not. Typical cases are working proprietors practising as accountant, architect, lawyer, pharmacist or physician; exercising crafts such as tailor, milliner, cabinetmaker or electrician; or performing service functions such as those of hairdresser, launderer or undertaker.

Since the 1958 edition the nature and the scope of the major group has been changed in several ways. It now includes only public officials and managerial workers who have important responsibilities, including significant policy-making and decision-making functions. It has been narrowed by transfers of the new minor groups 4-0, 5-0 and 5-1 (part) mentioned above, together with *Postmasters* (now unit group 3-52) and *Government executive officials* (now minor group 3-1). In addition, the basis of subdivision of the major group has been modified.

Legislative officials (2-01) and *Government administrators* (2-02) are allocated separate unit groups since the types of work performed, although related, should be distinguished. As regards managers, three categories have been identified according to their functions, and the subdivision made in the 1958 edition of ISCO, based on type of economic activity of the enterprise, has been discarded. At unit group level, the revised ISCO distinguishes 2-11—*General managers,* 2-12—*Production managers (except farm)* and 2-19—*Managers not elsewhere classified.* The latter may be split into several unit groups, if the user of ISCO so desires, along the lines of the revised ISCO five-digit categories, but such a detailed subdivision at unit group level has been considered to be impractical as an international standard.

Major Group 3: Clerical and Related Workers

This major group covers occupations which are commonly thought of as "office jobs"; the great majority are primarily concerned with the setting-up and maintenance of records of all kinds relating to financial transactions, other business and industrial operations, personnel, correspondence, routine operations of government departments, and so forth. Also included are those jobs concerned with the handling and routing of messages, verbal or recorded, and those concerned with handling cash, often combined with record-keeping functions. Certain jobs of these types are carried out mainly outside the office to which the worker reports, as in the cases of ticket collectors and conductors on passenger vehicles or postmen on delivery services. Supervisory occupations relating to office work and transport and communications service operations are also included here.

Minor group 3-0—*Clerical supervisors* is intended to cover occupations in which the primary function is to supervise all the office workers in an establishment or in a department of an establishment where several different types of clerical workers are engaged. It covers such jobs as chief clerk, general office; accounts section supervisor; and wages section supervisor. Those who control a group of workers all of whom perform similar work (e.g. chief bookkeeper or typing pool controller) are not included here but are classified in the same occupational category as the workers they control (e.g. among bookkeepers or typists, as appropriate). (See below: Notes on Classification of Supervisors, Foremen, Apprentices and Instructors.)

Minor group 3-1—*Government executive officials* was formerly combined with 2-02—*Government administrators.* The latter now covers only high-level administrators with important policy formulation and decision-making functions (see major group 2 above). Minor group 3-1 is not subdivided in ISCO—only one unit group and one five-digit category are provided—primarily because of the great diversity of jobs performed by government executive officials in the different countries. Included are central, provincial and local government officials who implement laws, rules and regulations and put into effect government policy decisions, under the direction and supervision of government administrators.

Typical occupations covered in minor group 3-1 are inspector (factories, weights and measures, civil service administration, etc.), passport officer, social security claims examiner, committee executive secretary, embassy secretary (diplomatic officer), coroner, censor, civil defence officer, establishments officer, electoral official. Excluded from this minor group are government employees performing professional, technical, craft or service functions, whose type of work determines their classification in other major groups, and those performing occupations classified elsewhere in major group 3. For instance, clerical supervisors in government offices are classified in 3-0; postmasters in 3-52; civil servants who are bookkeepers, stenographers or correspondence clerks (for example) are classified, as appropriate, in other unit groups of major group 3.

More detailed subdivision at minor and unit group levels has been provided in revising this major group. In particular, several types of office-machine operators have been distinguished. A new unit group, 3-22—*Card- and tape-punching machine operators*, has been added to the former minor group relating to stenographers and typists. A separate minor group, 3-4—*Computing machine operators*, has been established, including 3-42—*Automatic data-processing machine operators.* Five new unit groups refer to various categories of clerks who were formerly included in one unit group for Clerks Not Elsewhere Classified. Practical use of these new subdivisions is possible provided the data to be classified are collected in sufficiently precise form and vague entries such as "clerk" (undefined) are not accepted.

The scope of the present major group 3 has been enlarged through the transfer of certain occupations from the former major group 6 of the 1958 edition of ISCO. Those transferred here are 3-5—*Transport and communications supervisors* (including also *Postmasters* transferred from former major group 1), 3-6—*Transport Conductors*, 3-7—*Mail* *distribution clerks* (part relating to postmen and messengers), and 3-8—*Telephone and telegraph operators.* In addition, as noted above, *Government executive officials* have been transferred to revised major group 3.

Major Group 4: Sales Workers

Although personnel of the "sales" type are numerous, the range of tasks performed in the occupations concerned is comparatively narrow. Major group 4, covering occupations in buying and selling goods, property and services of all kinds, therefore has a limited number of minor and unit groups.

The scope of the major group has been enlarged to include minor group 4-0—*Managers (wholesale and retail trade).* In conformity with the practice adopted in 1958, minor group 4-1—*Working proprietors (wholesale and retail trade)* is also included. These two minor groups are in a somewhat similar situation in respect of the occupations they cover. Experience has indicated that there is practical difficulty (particularly in circumstances where information is not available on the size of the enterprise) in distinguishing between a working proprietor or manager whose primary function is executing selling tasks (including those of sales supervisor) and one who is mainly occupied with managerial tasks. The great majority are engaged in a relatively small independent store or a branch of a chain store, mostly in retail trade, while some workers with the title of "manager" control only one sales section of a department store. It is therefore preferable to classify all working proprietors and managers in wholesale and retail trade in major group 4, even though this will include certain general managers of large stores (in a few cases they might be working proprietors) who, strictly speaking, should qualify for classification in major group 2.

Recognising that it is often difficult to distinguish wholesale from retail trading, only one unit group is provided for *Working proprietors (wholesale and retail trade)* in the revised ISCO. It should be noted, moreover, that self-employed buyers, manufacturers' agents, insurance agents, real estate agents, auctioneers, street vendors, canvassers, pawnbrokers, etc., are classified in the minor groups appropriate to the work they perform (i.e. 4-2 to 4-9) and not among *Working proprietors (wholesale and retail trade).*

One important modification in the classification structure within this major group is the creation of a new minor group 4-2—*Sales supervisors and buyers.* Another is the combination of a new unit group, 4-31—*Technical salesmen and service advisers,* with the former minor group, *Commercial travellers and manufacturers' agents,* which has become a unit group (4-32).

Barmen, waiters, lodging-house keepers and similar workers are classified in major group 5. They are considered to be performing services and are therefore not treated as executing the same kind of tasks as salesmen.

Major Group 5: Service Workers

Occupations in this major group are those concerned with performing housekeeping services relating to the everyday needs of families, other groups and individuals for meals, drinks and other living comforts, cleaning and caretaking services, personal care services, protective services for persons and property, and other miscellaneous services.

Housekeeping and related service supervisors are classified in a separate minor group (5-2), like other groups for supervisors established in the revised ISCO. It will be recalled that, in the 1958 edition of ISCO, managers (including working proprietors) of "boarding houses" and "lodging houses" were classified among service workers in the former major group 9. This principle has now been extended to those conducting hotels, restaurants, etc., and the following minor groups have been set up: 5-0—*Managers (catering and lodging services)* and 5-1—*Working proprietors (catering and lodging services)*. A parallel may be drawn with the rule applied in the revised ISCO by which both managers and working proprietors in wholesale and retail trade have now been placed in the same major group (see major group 4 above). In the majority of cases the catering and lodging establishments are not large and therefore the managerial tasks performed are of less importance than the other work executed by managers and working proprietors of these establishments.

Working proprietors and managers who conduct an establishment to furnish certain types of services are classified, along with other workers in the relevant service occupations, in the following minor groups: 5-6—*Launderers, dry-cleaners and pressers*; 5-7—*Hairdressers, barbers, beauticians and related workers*; 5-9—*Service workers not elsewhere classified.* Thus, for example, the manager or working proprietor of a hairdressing establishment is classified in 5-70—*Hairdressers, barbers, beauticians and related workers*; in the case of an undertaker's establishment, he is classified in unit group 5-92—*Undertakers and embalmers.*

Workers in protective service occupations (other than members of the armed forces) are classified in minor group 5-8—*Protective service workers*, which includes fire-fighters, policemen, guards and related workers. In a few countries personnel carrying out police and similar functions are, from a legal standpoint, members of the armed forces, but for international comparisons they should be classified in minor group 5-8. Similarly, customs examiners and immigration officials (passport control), who in some countries are organised as special police forces, should be classified in unit group 3-10—*Government executive officials.*

Changes in the scope of major group 5 since the 1958 edition of ISCO, in addition to those mentioned above (minor groups 5-0 and 5-1), relate to the transfer from this major group of two former minor groups, namely *Athletes, sportsmen and related workers* and *Photographers and related camera operators.* These two minor groups are now covered in major group 0/1.

Major Group 6: Agricultural, Animal Husbandry and Forestry Workers, Fishermen and Hunters

This major group covers a large fraction of the world's labour force. It is numerically the largest in developing countries and it continues to be an important one in some of the economically advanced countries. One of the primary objectives in revising ISCO has been to provide a more detailed subdivision of this major group, particularly at unit group level.

The revised classification structure now separates 6-0—*Farm managers and supervisors* from 6-1—*Farmers.* Other workers in agricultural and animal husbandry occupations, formerly combined in a single unit group, have been subdivided into nine unit groups (6-21 to 6-29). The chief problem in devising an occupational classification of agricultural workers is that the different categories commonly overlap one another as regards the type of work performed. For purposes of ISCO, the basis for distinguishing unit groups has been that the type of agricultural work performed is differentiated primarily by the type of product. In practice, this corresponds closely with the type of farm on which the work is performed.

In ISCO terminology the words "farm" and "farmer" have the widest possible interpretation. They are used with reference to occupations ranging from those performed on small family holdings, where family workers often perform a wide variety of agricultural and animal husbandry tasks, to specialised jobs performed on highly organised plantations and model farms. "Farming" is also interpreted to cover such work as growing special crops like mushrooms and beansprouts in cellars, cultivating plants in glasshouses and raising birds, reptiles and pet animals.

Landowners who do not themselves conduct an agricultural or animal husbandry establishment are not classified as farmers. Similarly, managers of agricultural investment companies who may exercise administrative control but do not supervise farming operations on the spot are not classified in major group 6 but in major group 2. Managers of machinery pools or of undertakings providing spraying, sheep-shearing or other agricultural services are also classified in major group 2 and not among farm managers.

Minor group 6-0—*Farm managers and supervisors* includes general overseers and general farm foremen who are not readily distinguishable from farm managers in some countries. They are similar to *Production supervisors and general foremen* (minor group 7-0), who work in non-agricultural establishments.

Minor group 6-1—*Farmers* (i.e. working proprietors conducting agricultural and animal husbandry enterprises) has been subdivided into two unit groups: 6-11—*General farmers* and 6-12—*Specialised farmers.* The former are engaged in mixed farming, while the latter concentrate on producing one main type of agricultural product (e.g. field crops, fruits or nursery products) or on one type of animal husbandry (e.g. dairy farming, poultry raising or livestock raising).

Minor group 6-2—*Agricultural and animal husbandry workers* covers occupations of specialised farm workers (except farmers, farm managers and supervisors), general farmhands and agricultural labourers. Excluded from this minor group are workers in agricultural establishments who perform non-agricultural work, for example cooks, bookkeepers, veterinarians, etc.

One unit group, 6-28—*Farm machinery operators,* covers workers who are principally engaged in operating mechanical farming equipment for cultivating, planting, harvesting or other purposes. *Milker (machine)* is classified in 6-25—*Dairy farm workers.* Many farm workers may operate a machine from time to time in the course of their normal duties but they have other tasks which form the principal element of their occupations and hence determine where they should be classified.

Unit group 6-21—*General farm workers* relates to workers performing a wide variety of agricultural and animal husbandry tasks. They are found to a certain extent even on large farms but are especially numerous on the smaller multi-product farms. They are not typically associated with one particular type of agricultural product, or with a particular type of animal husbandry, in the same way as workers classified in unit groups 6-22 to 6-27.

The latter unit groups relate to field crop farm workers, orchard workers, livestock workers, dairy farm workers, and so forth.

It follows from the above method of forming unit groups for farm workers (other than farm machinery operators), that whereas temporary farm workers (including harvest hands) who during the year work on different types of farm are classified in 6-21, other temporary farm workers (including harvest hands) who as a rule work on one particular type of farm are classified in one of the unit groups 6-22 to 6-27, or in 6-29—*Agricultural and animal husbandry workers not elsewhere classified.*

Included in unit group 6-29 are workers in occupations concerned with beekeeping; silkworm culture; growing mushrooms; raising frogs, snails, worms, reptiles, mice, pet animals and birds (except poultry); tapping trees (except rubber) for resin or syrup; irrigation of farm land; maintaining parks and sports grounds; cultivating miscellaneous crops such as spices and reeds. Tappers of rubber trees are classified in unit group 6-23.

Two unit groups are now provided in minor group 6-3—*Forestry workers,* to separate 6-31—*Loggers* and 6-32—*Forestry workers (except logging).* It is recognised, however, that logging work in some countries is only seasonal or part-time work for other forestry workers and in some circumstances unit group 6-31 may not be needed. Charcoal burners and turpentine distillers in forests are no longer classified here but have been transferred to minor group 7-4. Two former minor groups have been combined to create minor group 6-4—*Fishermen, hunters and related workers.*

Major Group 7/8/9: Production and Related Workers, Transport Equipment Operators and Labourers

This is the largest major group in terms of the number of minor and unit groups provided and, for most industrialised countries, the proportion of the labour force covered. The occupations covered are those associated primarily with the extraction of minerals, the processing of materials and the fabrication and repair of products, including buildings and other structures; occupations primarily concerned with operating transport equipment, earth-moving and material handling equipment; and non-agricultural labouring occupations.

The main problem with regard to this major group has been to find a means of accommodating occupations which are broadly similar in purpose but which are executed in different ways because they are carried out under different technological conditions in different establishments, especially in developing countries where both traditional and modern technologies exist side by side. In addition, technological development continues to bring about changes in the way work gets done. Essentially, these changes are reflected in the replacement of craftsmen by operatives as a result of mechanisation and in greater subdivision of duties. The craftsman or "all-round" man performs a wide range of tasks and functions, making a complete article. The operative, on the other hand, usually performs a narrow range of tasks and functions. Operatives normally specialise in utilising a particular kind of machine or other mechanical equipment, which may be automatic or semi-automatic, and perform repetitive operations. They frequently get most of their training on the job and may change relatively frequently from one set of tasks to another.

In addition to craftsmen and operatives, a wide range of other occupations is covered by major group 7/8/9, and in order to make its structure more systematic the following arrangement has been designed:

(a) First comes a category that may be called "processing occupations". These are concerned mainly with the extraction and processing of minerals and processing of other materials. They require such operations as earth drilling, crushing, grinding, milling, calendering, refining, combing, soaking, heating, distilling and similar processes used mainly in preparing or making the materials needed for further use in the production of finished articles.

(b) Next are occupations primarily concerned with further steps in the production process, which might be termed "fabricating and assembling occupations". These require mainly such operations as cutting, shaping, sewing, joining, assembling and otherwise fabricating or making complete products or parts. Occupations concerned with repairing similar items are also included.

(c) Another closely allied category may be identified as a subgroup of the fabricating occupations in that they are primarily concerned with assembling materials and manufactured products to erect or repair structures, particularly buildings.

(d) The next category relates to occupations concerned with operating stationary engines, equipment and vehicles to provide power and to move materials, products and persons from one location to another. Operations performed in these occupations include operating power-generating machinery; operating hoists and cranes; setting up rigging; operating mechanical shovels, loaders, lumber carriers, graders and stackers; driving railway engines, lorries, buses and other vehicles; and serving as members of ships' crews. Associated with these workers are dockers (longshoremen) and other freight handlers.

(e) Labourers (other than mine and farm labourers) form the final part.

Although the above-mentioned categories have not been demarcated by special headings in the Classified List, the titles are arranged to follow the same sequence. Thus "processing" occupations have been brought together in the first part of the major group, followed in the next section by "fabricating" occupations. In the 1958 edition associated minor groups, for instance those relating to preparing textiles from fibres (former 7-0) and those relating to making products from textiles (former 7-1), were placed in consecutive minor groups.

Because of the nature of the materials, processes and products concerned, some groups do not lend themselves easily to strict application of this systematic approach. For example tobacco processers and tobacco product makers remain as one minor group, 7-8. Similarly, occupations in processing food constituents and making food products are found in one minor group, 7-7. Foods are ready for consumption at various stages of manufacture and it is therefore not practicable to make the above-mentioned distinction at minor group level.

In general, the relationships between the occupations included in a particular minor group are reflected in such factors as using similar materials in the work (e.g. fibres, textile piece-goods, leather, metals or wood), or carrying out similar processes (as in printing occupations), or applying similar skills or training (as in electrical and electronic equipment making and installing, and electrical wiring). Hence the workers grouped together are also generally familiar with particular types of tools, machines and techniques. However, the scope of ISCO groups does not correspond in any way with that of specific industries as defined in the International Standard Industrial Classification of All Economic Activities.[1]

As mentioned previously, in comments under major group 2, a working proprietor exercising a craft (such as tailor, dressmaker, milliner, baker, cabinetmaker, shoemaker, watch repairer, electrician, automobile mechanic or sign painter), is classified according to the craft in which he is engaged, whether or not he employs any assistants. He may be compared with the working foreman, who participates in the work done by the team under his control and is classified in the same occupation as members of the team. The fact that the proprietor has some other duties, concerned with conducting his own business, does not change his basic occupation. A similar rule applies to those working on their own account in such occupations as piano tuner, taxi owner-driver or car driving instructor.

Minor group 7-0—*Production supervisors and general foremen* has been introduced to cover workers whose function is to organise, control and direct the daily activities of a group of subordinate production and assimilated workers who exercise a number of different but usually related occupations (sometimes including that of subordinate foremen) and who constitute, as a rule, a self-contained operational unit. Regarding the classification of foremen see below: Notes on Classification of Supervisors, Foremen, Apprentices and Instructors.

In principle, repairmen are classified in ISCO in the same groups as workers who assemble, make or build the article in question. Only one unit group title in ISCO contains the term "repairmen", namely 8-54—*Radio and television repairmen.* Nevertheless, minor group 8-4—*Machinery fitters, machine assemblers and precision-instrument makers (except electrical)* contains an important class of mechanics whose work is very largely on repairs.

Thus, there are unit groups 8-43—*Motor-vehicle mechanics* and 8-44—*Aircraft engine mechanics*, together with a large assortment of other machinery mechanics who are classified in the residual unit group 8-49. Provided in the latter, at the five-digit level of detail, are 14 distinct categories of mechanics concerned with stationary engines and mining, manufacturing, agricultural and earth-moving machinery, office machines, pedal-cycles, etc. Mechanics with an electrical or electronics specialisation are classified in minor group 8-5—*Electrical fitters and related electrical and electronics workers.*

Minor group 9-9—*Labourers not elsewhere classified* excludes some types of workers who, for certain types of occupational analysis, might be considered to resemble general labourers. In particular, it does not cover agricultural labourers (classified in major group 6), mine labourers (classified in minor group 7-1), dockers and freight handlers (classified in unit group 9-71) and charworkers, cleaners and related service workers (classified in unit group 5-52). Nevertheless, minor group 9-9 covers a wide range of jobs, illustrated by the following examples: chainman (surveying), park cleaner, street sweeper, ballast man (railway), gravedigger, hod carrier, refuse collector, sanitary man (waste disposal), land clearer, factory cleaner, vehicle washer. The workers included here have little "skill", in the sense that skill implies specialised training, use of machines and hand-work tools, etc., but some labourers acquire useful experience which enables them to execute their work with a certain efficiency. Their level of "skill" therefore may be in some cases more or less comparable with that of some workers who are classified in other minor groups.

The scope of major group 7/8/9 has been enlarged by certain transfers. Minor group 7-1—*Miners, quarrymen, well drillers and related workers* corresponds to major group 5 of the 1958 edition of ISCO, with minor exceptions. Drivers of vehicles in mines have been transferred to minor group 9-8; mine cagemen and operators of hoists in mines have been transferred to minor group 9-7.

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[1] United Nations: Statistical Papers, Series M, No. 4, Rev. 2 (New York, 1968).

Another important transfer to major group 7/8/9 consists of *Transport equipment operators* (now 9-8). This group includes former minor groups 6-1, 6-3, 6-4, part of 6-5, part of former unit group 6-62 and part of former minor group 6-9. Details are given in the Conversion Table at the end of this volume.

A few former unit groups of minor importance have been suppressed in revising ISCO, for example harness and saddle makers, jewellery engravers, drivers propelling their vehicles (e.g. rickshaws). On the other hand, the revised ISCO is more detailed because some former minor and unit groups have been split up to form new groups which are more homogeneous or more satisfactory in other respects. The relationship between the minor and unit groups of the 1958 edition of ISCO and the revised list of groups can be seen in the Conversion Table.

Major Group X: Workers Not Classified by Occupation

Job-seekers who have not worked before may aspire to take up a certain type of occupation but they cannot be considered as already having a specific occupation. Hence, in census-type inquiries into the actual occupations of the population they must be classified in a group apart. For this purpose ISCO provides unit group X-10—*New workers seeking employment*. There are no subdivisions of this unit group.

For other uses of ISCO, unit group X-10 may not be needed. For instance, an employment service may classify job-seekers according to the type of work sought, or according to the aptitudes and formal training of the applicants, thus allocating new workers to appropriate ISCO categories in major groups 0/1 to 7/8/9.

Unit groups X-20—*Workers reporting occupations unidentifiable or inadequately described* and X-30—*Workers not reporting any occupation* cover persons in the civilian labour force concerning whom insufficient information or no information is available to permit their allocation to one of the preceding groups of occupations. As in the case of unit group X-10, such groups may be necessary in connection with certain uses of the classification (e.g. for reporting census data) but not in other applications. In practical work the use of the code numbers X-20 and X-30 would permit the preliminary separation and listing of the cases where follow-up action could be undertaken to try to obtain more complete information.

The minor groups in major group X are not intended to cover persons who are outside the civilian labour force, such as retired workers, alien diplomatic personnel or non-integrated tribal peoples. Such classes are sometimes identified in population censuses and demographic surveys; classifications other than that based on occupation may be used for this purpose.

Armed Forces

ISCO covers the whole economically active population, including the armed forces, in accordance with the recommendations of the United Nations Statistical and Population Commissions. In most of its applications, however, ISCO is used in connection with classification of the civilian working population according to occupational group. The final category of ISCO, *Armed forces*, covers the remainder of the economically active population. Although no code number has been allotted to it, an appropriate code can be adopted when this group is utilised.

NOTES ON CLASSIFICATION OF SUPERVISORS, FOREMEN, APPRENTICES AND INSTRUCTORS

Supervisors

Certain minor unit groups of ISCO cover particular kinds of supervisors, i.e. workers whose main functions consist in directing and controlling other workers, principally non-industrial workers. The following have been distinguished: 3-00—*Clerical supervisors*, 3-5—*Transport and communications supervisors*, 4-21—*Sales supervisors*, and 5-20—*Housekeeping and related service supervisors.*

Workers classified as supervisors, included in the above-mentioned groups, primarily carry out the function of organising, controlling and directing the daily activities of a group of subordinate workers who exercise a number of different but usually related occupations and who as a rule constitute a self-contained work group. Supervisors in this sense have a position intermediate between managers and heads of particular units or sections doing a specialised type of work (see comments below on head cook, principal bookkeeper, etc.) Supervisors are sometimes referred to collectively as "middle management" and not infrequently they are referred to as "director", "sub-manager", "chief", etc.

In addition, *Farm supervisor* (6-00.30) is identified in ISCO. He is included in unit group 6-00—*Farm managers and supervisors*, since it is often very difficult to distinguish these two categories. "Supervisors" on farms are akin to *Production supervisors and general foremen* (classified in minor group 7-00) who supervise non-agricultural workers engaged on various occupations.

Some tasks of a supervisory nature form a part of many occupations. In many cases, however, only the senior or more experienced workers in the occupation have the subsidiary duty of supervising other workers in the same or closely related occupations. This additional duty does not change the essential nature of the occupation. A certain hierarchy of positions, based on level of responsibility for day-to-day direction and control of subordinates working in the same or very closely related occupations is often exemplified, particularly in the organisation of work carried out by professional and technical staff (e.g. chemists, medical doctors, engineers, etc.). The main emphasis is generally on responsibility for the control of the professional or technical quality of the work done. For purposes of classification according to ISCO, such supervisory tasks do not change the worker's basic occupation. Thus, chief chemist is classified among 0-11—*Chemists*, chief medical officer or senior hospital physician among 0-61—*Medical doctors*, chief highway and street construction engineer among 0-22—*Civil engineers* and chief accountant among 1-10—*Accountants*, etc.

A similar procedure applies in classifying the head of a unit or team all of whose members do more or less the same type of work, even though the head of the unit may be primarily occupied in checking or controlling the work done by those under his control and may not himself directly execute any of the basic work. Here it is considered that the work of the head and that of his staff are not occupationally different, but the head has additional responsibility, namely for the quantity and the quality of the work done.

The following are a few examples of the application of this rule. *Head waiter* is identified as a separate occupation in ISCO (in 5-32.20) but is classified among 5-32—*Waiters, bartenders and related workers* rather than in unit group 5-20—*Housekeeping and related service supervisors*; similarly, 5-31.20—*Head cook* is classified among 5-31—*Cooks.* In the same vein, principal typist is classified as 3-21.10—*Stenographer-typist (general)* rather than in unit group 3-00—*Clerical supervisors*; similarly principal bookkeeper is classified as 3-31.10—*Bookkeeper (general).*

Foremen

The term "foreman" most frequently describes a worker's status in his occupation rather than a specific occupation. There are two main classes of foremen, classified differently according to the rules adopted for ISCO.

First, there are those foremen who, in addition to assigning, co-ordinating and controlling work performed by a group of workers all performing similar specialised duties (or closely related tasks), participate themselves in executing the work of the group. This type of foreman is usually a craftsman or other experienced specialised worker who does some of the more difficult work and has been given additional duties of allocating work and controlling its execution. From an occupational point of view, he is assimilated with the workers under his control—part of the time he performs the same type of work as they do, at other times he is controlling the execution of such work and his status (as foreman) is dependent on his skill and experience in this particular type of work. Accordingly, he is classified in the same group as the workers under his control. For instance, foreman-carpenter is classified among 9-54—*Carpenters, joiners and parquetry workers*, and foreman-electrician among 8-55—*Electrical wiremen.*

Where more detailed classification is undertaken by applying ISCO five-digit occupational categories, use should be made whenever appropriate of the "all-round worker" category to classify certain foremen—e.g. a foreman-carpenter who supervises construction carpenters, bench carpenters and parquetry workers should be classified under 9-54.10—*Carpenter (general).*

If the need arises, foremen of the type described above may be separately identified in classification work by adding a sixth digit to the ISCO code allotted to them, or by some other practical means.

The other main type of "foreman" has wider functions and responsibilities. He is generally in charge of an operational unit where workers in various occupations are engaged, sometimes including subordinate foremen. He has organising, controlling and overseeing functions and normally does not participate directly in execution of the work of the unit. He sees that all the work to be done is allocated to others and plans the work programme, the sequence of operations, the use of machinery, etc. In general, he is akin to "Supervisor" (see notes above) and is classified in ISCO in unit group 7-00—*Production supervisors and general foremen.*

Apprentices

Apprenticeship is considered to be a special status within a normal occupation, rather than a unique type of occupation which is filled solely by apprentices. The apprentice has the status of a learner of an occupation and, as a rule, has entered a formal agreement with his employer. Whether covered by a written agreement or not, apprentices are classified in ISCO according to the occupation being learned. This means that apprentices in their first year of training and others in a more advanced stage may be classified in the same group. If the need arises, apprentices may be identified separately (and also may be subdivided according to years of training completed) by adding another digit to the ISCO code.

Helpers are not treated in the same manner as apprentices. Helpers are workers associated with an occupation by assisting another worker performing the occupation. They are normally classified in ISCO in residual categories, i.e. under five-digit codes ending in ".90", such as 8-73.90—*Other sheet-metal workers*; 9-72.90—*Other riggers and cable splicers*, etc.

As mentioned above (see notes on major group 0/1), workers in a formal learning status with an employer who instructs them in a "profession" (such as architecture, law, pharmacy or accountancy) are not classified according to the rule for apprentices. They usually attend specialised courses of study during an extended period of time, in addition to receiving on-the-job training. In ISCO they are not classified among workers practising the profession (i.e. among those who have completed their training and who, as a rule, have obtained a diploma, certificate or licence to practise). They are considered to have a closely related occupation and are classified accordingly (for example as architectural draughtsman, legal clerk, pharmaceutical assistant or bookkeeper).

Instructors

Instructors are workers who are engaged in instructing or teaching other workers at their place of work in the technical aspects and the practical execution of the tasks comprising their occupation. This is commonly known as on-the-job training. Instructors are distinct from foremen, who may give some instruction as a minor part of their duties; they are also distinct from workers whose main occupation is that of teacher in a technical school or similar institution.

Instructors are classified in ISCO according to the craft or specialised work in which they instruct. Motor-vehicle driving instructors, for example, are classified in unit group 9-85—*Motor-vehicle drivers*; instructors in carpentry in unit group 9-54—*Carpenters, joiners and parquetry workers*; instructors in fur tailoring in unit group 7-92—*Fur tailors and related workers*; and so on. Instructors may be identified separately, if the need arises, by adding one more digit to the ISCO code number, or by some other means.

Persons whose principal occupation consists in giving private instruction in dancing, music, or other arts or crafts outside of a school or similar institution, whether full-time or part-time, are classified in ISCO on the same basis as mentioned above for instructors. Thus private teachers of music or painting are classified as musicians or painters, as the case may be. However, private tutors who prepare school or university students in their normal courses of study are classified in minor group 1-3—*Teachers.*

MAJOR, MINOR AND UNIT GROUPS

Major Group 0/1: Professional, Technical and Related Workers

- 0-1 Physical Scientists and Related Technicians
  - 0-11 Chemists
  - 0-12 Physicists
  - 0-13 Physical scientists not elsewhere classified
  - 0-14 Physical science technicians
- 0-2/0-3 Architects, Engineers and Related Technicians
  - 0-21 Architects and town planners
  - 0-22 Civil engineers
  - 0-23 Electrical and electronics engineers
  - 0-24 Mechanical engineers
  - 0-25 Chemical engineers
  - 0-26 Metallurgists
  - 0-27 Mining engineers
  - 0-28 Industrial engineers
  - 0-29 Engineers not elsewhere classified
  - 0-31 Surveyors
  - 0-32 Draughtsmen
  - 0-33 Civil engineering technicians
  - 0-34 Electrical and electronics engineering technicians
  - 0-35 Mechanical engineering technicians
  - 0-36 Chemical engineering technicians
  - 0-37 Metallurgical technicians
  - 0-38 Mining technicians
  - 0-39 Engineering technicians not elsewhere classified
- 0-4 Aircraft and Ships' Officers
  - 0-41 Aircraft pilots, navigators and flight engineers
  - 0-42 Ships' deck officers and pilots
  - 0-43 Ships' engineers
- 0-5 Life Scientists and Related Technicians
  - 0-51 Biologists, zoologists and related scientists
  - 0-52 Bacteriologists, pharmacologists and related scientists
  - 0-53 Agronomists and related scientists
  - 0-54 Life sciences technicians
- 0-6/0-7 Medical, Dental, Veterinary and Related Workers
  - 0-61 Medical doctors
  - 0-62 Medical assistants
  - 0-63 Dentists
  - 0-64 Dental assistants
  - 0-65 Veterinarians

0-66 Veterinary assistants
0-67 Pharmacists
0-68 Pharmaceutical assistants
0-69 Dietitians and public health nutritionists
0-71 Professional nurses
0-72 Nursing personnel not elsewhere classified
0-73 Professional midwives
0-74 Midwifery personnel not elsewhere classified
0-75 Optometrists and opticians
0-76 Physiotherapists and occupational therapists
0-77 Medical X-ray technicians
0-79 Medical, dental, veterinary and related workers not elsewhere classified

0-8 Statisticians, Mathematicians, Systems Analysts and Related Technicians
0-81 Statisticians
0-82 Mathematicians and actuaries
0-83 Systems analysts
0-84 Statistical and mathematical technicians

0-9 Economists
0-90 Economists

1-1 Accountants
1-10 Accountants

1-2 Jurists
1-21 Lawyers
1-22 Judges
1-29 Jurists not elsewhere classified

1-3 Teachers
1-31 University and higher education teachers
1-32 Secondary education teachers
1-33 Primary education teachers
1-34 Pre-primary education teachers
1-35 Special education teachers
1-39 Teachers not elsewhere classified

1-4 Workers in Religion
1-41 Ministers of religion and related members of religious orders
1-49 Workers in religion not elsewhere classified

1-5 Authors, Journalists and Related Writers
1-51 Authors and critics
1-59 Authors, journalists and related writers not elsewhere classified

1-6 Sculptors, Painters, Photographers and Related Creative Artists
1-61 Sculptors, painters and related artists
1-62 Commercial artists and designers
1-63 Photographers and cameramen

1-7 Composers and Performing Artists
1-71 Composers, musicians and singers
1-72 Choreographers and dancers
1-73 Actors and stage directors
1-74 Producers, performing arts
1-75 Circus performers
1-79 Performing artists not elsewhere classified

1-8 Athletes, Sportsmen and Related Workers
  - 1-80 Athletes, sportsmen and related workers

1-9 Professional, Technical and Related Workers Not Elsewhere Classified
  - 1-91 Librarians, archivists and curators
  - 1-92 Sociologists, anthropologists and related scientists
  - 1-93 Social workers
  - 1-94 Personnel and occupational specialists
  - 1-95 Philologists, translators and interpreters
  - 1-99 Other professional, technical and related workers

Major Group 2: Administrative and Managerial Workers

2-0 Legislative Officials and Government Administrators
  - 2-01 Legislative officials
  - 2-02 Government administrators

2-1 Managers
  - 2-11 General managers
  - 2-12 Production managers (except farm)
  - 2-19 Managers not elsewhere classified

Major Group 3: Clerical and Related Workers

3-0 Clerical Supervisors
  - 3-00 Clerical supervisors

3-1 Government Executive Officials
  - 3-10 Government executive officials

3-2 Stenographers, Typists and Card- and Tape-Punching Machine Operators
  - 3-21 Stenographers, typists and teletypists
  - 3-22 Card- and tape-punching machine operators

3-3 Bookkeepers, Cashiers and Related Workers
  - 3-31 Bookkeepers and cashiers
  - 3-39 Bookkeepers, cashiers and related workers not elsewhere classified

3-4 Computing Machine Operators
  - 3-41 Bookkeeping and calculating machine operators
  - 3-42 Automatic data-processing machine operators

3-5 Transport and Communications Supervisors
  - 3-51 Railway station masters
  - 3-52 Postmasters
  - 3-59 Transport and communications supervisors not elsewhere classified

3-6 Transport Conductors
  - 3-60 Transport conductors

3-7 Mail Distribution Clerks
  - 3-70 Mail distribution clerks

3-8 Telephone and Telegraph Operators
  - 3-80 Telephone and telegraph operators

3-9 Clerical and Related Workers Not Elsewhere Classified
- 3-91 Stock clerks
- 3-92 Material and production planning clerks
- 3-93 Correspondence and reporting clerks
- 3-94 Receptionists and travel agency clerks
- 3-95 Library and filing clerks
- 3-99 Clerks not elsewhere classified

Major Group 4: Sales Workers

4-0 Managers (Wholesale and Retail Trade)
- 4-00 Managers (wholesale and retail trade)

4-1 Working Proprietors (Wholesale and Retail Trade)
- 4-10 Working proprietors (wholesale and retail trade)

4-2 Sales Supervisors and Buyers
- 4-21 Sales supervisors
- 4-22 Buyers

4-3 Technical Salesmen, Commercial Travellers and Manufacturers' Agents
- 4-31 Techical salesmen and service advisers
- 4-32 Commercial travellers and manufacturers' agents

4-4 Insurance, Real Estate, Securities and Business Services Salesmen and Auctioneers
- 4-41 Insurance, real estate and securities salesmen
- 4-42 Business services salesmen
- 4-43 Auctioneers

4-5 Salesmen, Shop Assistants and Related Workers
- 4-51 Salesmen, shop assistants and demonstrators
- 4-52 Street vendors, canvassers and newsvendors

4-9 Sales Workers Not Elsewhere Classified
- 4-90 Sales workers not elsewhere classified

Major Group 5: Service Workers

5-0 Managers (Catering and Lodging Services)
- 5-00 Managers (catering and lodging services)

5-1 Working Proprietors (Catering and Lodging Services)
- 5-10 Working proprietors (catering and lodging services)

5-2 Housekeeping and Related Service Supervisors
- 5-20 Housekeeping and related service supervisors

5-3 Cooks, Waiters, Bartenders and Related Workers
- 5-31 Cooks
- 5-32 Waiters, bartenders and related workers

5-4 Maids and Related Housekeeping Service Workers Not Elsewhere Classified
- 5-40 Maids and related housekeeping service workers not elsewhere classified

5-5 Building Caretakers, Charworkers, Cleaners and Related Workers
- 5-51 Building caretakers
- 5-52 Charworkers, cleaners and related workers

5-6 Launderers, Dry-Cleaners and Pressers
  - 5-60 Launderers, dry-cleaners and pressers

5-7 Hairdressers, Barbers, Beauticians and Related Workers
  - 5-70 Hairdressers, barbers, beauticians and related workers

5-8 Protective Service Workers
  - 5-81 Fire-fighters
  - 5-82 Policemen and detectives
  - 5-89 Protective service workers not elsewhere classified

5-9 Service Workers Not Elsewhere Classified
  - 5-91 Guides
  - 5-92 Undertakers and embalmers
  - 5-99 Other service workers

Major Group 6: Agricultural, Animal Husbandry and Forestry Workers, Fishermen and Hunters

6-0 Farm Managers and Supervisors
  - 6-00 Farm managers and supervisors

6-1 Farmers
  - 6-11 General farmers
  - 6-12 Specialised farmers

6-2 Agricultural and Animal Husbandry Workers
  - 6-21 General farm workers
  - 6-22 Field crop and vegetable farm workers
  - 6-23 Orchard, vineyard and related tree and shrub crop workers
  - 6-24 Livestock workers
  - 6-25 Dairy farm workers
  - 6-26 Poultry farm workers
  - 6-27 Nursery workers and gardeners
  - 6-28 Farm machinery operators
  - 6-29 Agricultural and animal husbandry workers not elsewhere classified

6-3 Forestry Workers
  - 6-31 Loggers
  - 6-32 Forestry workers (except logging)

6-4 Fishermen, Hunters and Related Workers
  - 6-41 Fishermen
  - 6-49 Fishermen, hunters and related workers not elsewhere classified

Major Group 7/8/9: Production and Related Workers, Transport Equipment Operators and Labourers

7-0 Production Supervisors and General Foremen
  - 7-00 Production supervisors and general foremen

7-1 Miners, Quarrymen, Well Drillers and Related Workers
  - 7-11 Miners and quarrymen
  - 7-12 Mineral and stone treaters
  - 7-13 Well drillers, borers and related workers

7-2 Metal Processers
- 7-21 Metal smelting, converting and refining furnacemen
- 7-22 Metal rolling-mill workers
- 7-23 Metal melters and reheaters
- 7-24 Metal casters
- 7-25 Metal moulders and coremakers
- 7-26 Metal annealers, temperers and case-hardeners
- 7-27 Metal drawers and extruders
- 7-28 Metal platers and coaters
- 7-29 Metal processers not elsewhere classified

7-3 Wood Preparation Workers and Paper Makers
- 7-31 Wood treaters
- 7-32 Sawyers, plywood makers and related wood-processing workers
- 7-33 Paper pulp preparers
- 7-34 Paper makers

7-4 Chemical Processers and Related Workers
- 7-41 Crushers, grinders and mixers
- 7-42 Cookers, roasters and related heat-treaters
- 7-43 Filter and separator operators
- 7-44 Still and reactor operators
- 7-45 Petroleum-refining workers
- 7-49 Chemical processers and related workers not elsewhere classified

7-5 Spinners, Weavers, Knitters, Dyers and Related Workers
- 7-51 Fibre preparers
- 7-52 Spinners and winders
- 7-53 Weaving- and knitting-machine setters and pattern-card preparers
- 7-54 Weavers and related workers
- 7-55 Knitters
- 7-56 Bleachers, dyers and textile product finishers
- 7-59 Spinners, weavers, knitters, dyers and related workers not elsewhere classified

7-6 Tanners, Fellmongers and Pelt Dressers
- 7-61 Tanners and fellmongers
- 7-62 Pelt dressers

7-7 Food and Beverage Processers
- 7-71 Grain millers and related workers
- 7-72 Sugar processers and refiners
- 7-73 Butchers and meat preparers
- 7-74 Food preservers
- 7-75 Dairy product processers
- 7-76 Bakers, pastrycooks and confectionery makers
- 7-77 Tea, coffee and cocoa preparers
- 7-78 Brewers, wine and beverage makers
- 7-79 Food and beverage processers not elsewhere classified

7-8 Tobacco Preparers and Tobacco Product Makers
- 7-81 Tobacco preparers
- 7-82 Cigar makers
- 7-83 Cigarette makers
- 7-89 Tobacco preparers and tobacco product makers not elsewhere classified

- 7-9 Tailors, Dressmakers, Sewers, Upholsterers and Related Workers
  - 7-91 Tailors and dressmakers
  - 7-92 Fur tailors and related workers
  - 7-93 Milliners and hatmakers
  - 7-94 Patternmakers and cutters
  - 7-95 Sewers and embroiderers
  - 7-96 Upholsterers and related workers
  - 7-99 Tailors, dressmakers, sewers, upholsterers and related workers not elsewhere classified
- 8-0 Shoemakers and Leather Goods Makers
  - 8-01 Shoemakers and shoe repairers
  - 8-02 Shoe cutters, lasters, sewers and related workers
  - 8-03 Leather goods makers
- 8-1 Cabinetmakers and Related Woodworkers
  - 8-11 Cabinetmakers
  - 8-12 Woodworking-machine operators
  - 8-19 Cabinetmakers and related woodworkers not elsewhere classified
- 8-2 Stone Cutters and Carvers
  - 8-20 Stone cutters and carvers
- 8-3 Blacksmiths, Toolmakers and Machine-Tool Operators
  - 8-31 Blacksmiths, hammersmiths and forging-press operators
  - 8-32 Toolmakers, metal patternmakers and metal markers
  - 8-33 Machine-tool setter-operators
  - 8-34 Machine-tool operators
  - 8-35 Metal grinders, polishers and tool sharpeners
  - 8-39 Blacksmiths, toolmakers and machine-tool operators not elsewhere classified
- 8-4 Machinery Fitters, Machine Assemblers and Precision Instrument Makers (except Electrical)
  - 8-41 Machinery fitters and machine assemblers
  - 8-42 Watch, clock and precision instrument makers
  - 8-43 Motor vehicle mechanics
  - 8-44 Aircraft engine mechanics
  - 8-49 Machinery fitters, machine assemblers and precision instrument makers (except electrical) not elsewhere classified
- 8-5 Electrical Fitters and Related Electrical and Electronics Workers
  - 8-51 Electrical fitters
  - 8-52 Electronics fitters
  - 8-53 Electrical and electronic equipment assemblers
  - 8-54 Radio and television repairmen
  - 8-55 Electrical wiremen
  - 8-56 Telephone and telegraph installers
  - 8-57 Electric linemen and cable jointers
  - 8-59 Electrical fitters and related electrical and electronics workers not elsewhere classified
- 8-6 Broadcasting Station and Sound Equipment Operators and Cinema Projectionists
  - 8-61 Broadcasting station operators
  - 8-62 Sound equipment operators and cinema projectionists
- 8-7 Plumbers, Welders, Sheet Metal and Structural Metal Preparers and Erectors
  - 8-71 Plumbers and pipe fitters
  - 8-72 Welders and flame-cutters
  - 8-73 Sheet-metal workers
  - 8-74 Structural metal preparers and erectors

8-8 Jewellery and Precious Metal Workers
8-80 Jewellery and precious metal workers

8-9 Glass Formers, Potters and Related Workers
8-91 Glass formers, cutters, grinders and finishers
8-92 Potters and related clay and abrasive formers
8-93 Glass and ceramics kilnmen
8-94 Glass engravers and etchers
8-95 Glass and ceramics painters and decorators
8-99 Glass formers, potters and related workers not elsewhere classified

9-0 Rubber and Plastics Product Makers
9-01 Rubber and plastics product makers (except tire makers and tire vulcanisers)
9-02 Tire makers and vulcanisers

9-1 Paper and Paperboard Products Makers
9-10 Paper and paperboard products makers

9-2 Printers and Related Workers
9-21 Compositors and typesetters
9-22 Printing pressmen
9-23 Stereotypers and electrotypers
9-24 Printing engravers (except photo-engravers)
9-25 Photo-engravers
9-26 Bookbinders and related workers
9-27 Photographic darkroom workers
9-29 Printers and related workers not elsewhere classified

9-3 Painters
9-31 Painters, construction
9-39 Painters not elsewhere classified

9-4 Production and Related Workers Not Elsewhere Classified
9-41 Musical instrument makers and tuners
9-42 Basketry weavers and brush makers
9-43 Non-metallic mineral product makers
9-49 Other production and related workers

9-5 Bricklayers, Carpenters and Other Construction Workers
9-51 Bricklayers, stonemasons and tile setters
9-52 Reinforced-concreters, cement finishers and terrazzo workers
9-53 Roofers
9-54 Carpenters, joiners and parquetry workers
9-55 Plasterers
9-56 Insulators
9-57 Glaziers
9-59 Construction workers not elsewhere classified

9-6 Stationary Engine and Related Equipment Operators
9-61 Power-generating machinery operators
9-69 Stationary engine and related equipment operators not elsewhere classified

9-7 Material-Handling and Related Equipment Operators, Dockers and Freight Handlers
9-71 Dockers and freight handlers
9-72 Riggers and cable splicers
9-73 Crane and hoist operators
9-74 Earth-moving and related machinery operators
9-79 Material-handling equipment operators not elsewhere classified

9-8 Transport Equipment Operators
  - 9-81 Ships' deck ratings, barge crews and boatmen
  - 9-82 Ships' engine-room ratings
  - 9-83 Railway engine drivers and firemen
  - 9-84 Railway brakemen, signalmen and shunters
  - 9-85 Motor vehicle drivers
  - 9-86 Animal and animal-drawn vehicle drivers
  - 9-89 Transport equipment operators not elsewhere classified

9-9 Labourers Not Elsewhere Classified
  - 9-99 Labourers not elsewhere classified

Major Group X: Workers Not Classifiable by Occupation

X-1 New Workers Seeking Employment
  - X-10 New workers seeking employment

X-2 Workers Reporting Occupations Unidentifiable or Inadequately Described
  - X-20 Workers reporting occupations unidentifiable or inadequately described

X-3 Workers Not Reporting Any Occupation
  - X-30 Workers not reporting any occupation

Armed Forces: Members of the Armed Forces

MAJOR GROUP 0/1

PROFESSIONAL, TECHNICAL AND RELATED WORKERS

Workers in this major group conduct research and apply scientific knowledge to the solution of a variety of technological, economic, social and industrial problems and perform other professional, technical, artistic and related functions in such fields as the physical and natural sciences, engineering, law, medicine, religion, education, literature, art, entertainment and sport.

They are classified in the minor groups listed below:

0-1 Physical scientists and related technicians.
0-2/0-3 Architects, engineers and related technicians.
0-4 Aircraft and ships' officers.
0-5 Life scientists and related technicians.
0-6/0-7 Medical, dental, veterinary and related workers.
0-8 Statisticians, mathematicians, systems analysts and related technicians.
0-9 Economists.
1-1 Accountants.
1-2 Jurists.
1-3 Teachers.
1-4 Workers in religion.
1-5 Authors, journalists and related writers.
1-6 Sculptors, painters, photographers and related creative artists.
1-7 Composers and performing artists.
1-8 Athletes, sportsmen and related workers.
1-9 Professional, technical and related workers not elsewhere classified.

0-1 PHYSICAL SCIENTISTS AND RELATED TECHNICIANS

Workers in this minor group conduct pure and applied research and develop practical applications of scientific knowledge, or perform related auxiliary technical tasks, in the field of the physical sciences. They normally specialise in a particular branch of physical science, such as organic, inorganic, physical or analytical chemistry, mechanics, heat, light, sound, electricity and magnetism, electronics, nuclear physics, geophysics, geology, meteorology and astronomy, and they may specialise in developing practical applications in medical, industrial, military or other particular fields. They are classified in the unit groups listed below:

0-11 Chemists.
0-12 Physicists.
0-13 Physical Scientists Not Elsewhere Classified.
0-14 Physical Science Technicians.

0-11 Chemists

Workers in this unit group conduct research in such fields as organic, inorganic, physical and analytical chemistry.

Their functions include:

conducting pure research to increase scientific knowledge in the field of chemistry;

conducting applied research and development work to test, develop and improve materials, products and industrial processes;

performing chemical tests and analyses for process and quality control;

developing analytical methodology and techniques.

Metallurgists are classified in unit group 0-26, *Biochemists and Pharmacologists* in 0-52 and *Pharmacists* in 0-67.

0-11.10 Chemist, General.

Conducts chemical experiments, tests and analyses to investigate chemical phenomena, to test, develop or improve materials and products and to control or develop industrial processes:

conducts experiments to determine composition, properties and interactions of substances and their reactions to changes in heat, light, pressure and other physical factors; applies known principles, methods and techniques of chemistry to discover and develop new products, new uses for existing products and new methods of production; performs chemical tests and analyses for process and quality control.

0-11.20 Organic Chemist.

Conducts chemical experiments, tests and analyses on substances of which main element is carbon, to investigate chemical phenomena, to test, develop or improve materials and products ot to control or develop industrial processes:

performs tasks similar to those of *Chemist (general) (0-11.10)* but specialises in organic chemistry, investigating such questions as the composition, constitution, reactions and syntheses of dyes, paints, petroleum, rubber, textiles and other carbon-based substances.

May specialise in organic chemistry of particular material or product and be designated accordingly.

0-11.30 Inorganic Chemist.

Conducts chemical experiments, tests and analyses on substances free or relatively free of carbon to investigate chemical phenomena, to test, develop or improve materials and products, or to control or develop industrial processes:

performs tasks similar to those of *Chemist (general) (0-11.10)* but specialises in inorganic chemistry, investigating such questions as the preparation, properties, structure and reactions of metals, ores, gases, acids, salts and other relatively carbon-free substances.

May specialise in particular field of inorganic chemistry, such as study of a particular element or class of compounds or of inorganic chemistry of a particular product and be designated accordingly.

0-11.40 Physical Chemist.

Conducts research into relationships between chemical and physical properties of substances to increase knowledge of physical aspects of chemical phenomena or to develop or improve materials, products or industrial processes:

performs tasks similar to those of *Chemist (general) (0-11.10)* but specialises in the application of physical laws and methods to the study of chemical behaviour as in electrochemistry, thermochemistry, radiation chemistry, surface chemistry, corrosion science and crystallography, where such techniques as spectroscopy, X-ray diffraction, thermomagnetic analysis and electron microscopy are employed.

May specialise in particular field of physical chemistry and be designated accordingly.

0-11.50 Analytical Chemist.

Carries out chemical tests and analyses of substances and develops and improves analytical methodology and techniques:

performs tasks similar to those of *Chemist (general) (0-11.10)* but specialises in analytical chemistry, carrying out qualitative and quantitative analyses to determine chemical and physical composition and properties of substances; formulates improved analytical methods based on observations and conclusions of experimentation and develops improved analytical techniques and instrumentation in such fields as chromatography, spectroscopy, spectrophotometry and microporosity measurement.

May specialise in organic or inorganic analysis, or in maintenance of chemical quality standards of materials and products and be designated accordingly.

0-11.90 Other Chemists.

This group includes chemists not elsewhere classified, for example those who specialise in the development and technical control of the manufacture of pharmaceutical products.

Pharmacologist is classified in 0-52.70 and *Pharmacist* in 0-67.10.

0-12 Physicists

Workers in this unit group conduct research into physical phenomena in such fields as mechanics, heat, light, sound, electricity and magnetism, electronics and nuclear physics.

Their functions include:

conducting pure research to increase scientific knowledge in the field of physics;

conducting applied research to develop or improve industrial, medical, military and other practical applications of the laws and theories of physics.

0-12.10 Physicist (General).

Conducts research into physical phenomena to increase scientific knowledge and to develop and improve materials, products and industrial and other processes:

performs experiments, tests and analyses to investigate structure and properties of matter, transformation and propagation of energy, relationships between matter and energy and other physical phenomena in fields such as mechanics, heat, light, sound, electricity and magnetism, electronics and nuclear physics; experiments to discover and develop industrial, medical, military and other practical applications of laws and theories of physics; applies mathematical techniques to express and analyse observations and to formulate conclusions; relates conclusions to known laws of physics or proposes new theories to explain them.

0-12.20 Mechanics Physicist.

Conducts research in the field of mechanics to investigate physical phenomena or to develop or improve materials, products or industrial and other processes:

performs tasks similar to those of *Physicist (general) (0-12.10)* but specialises in mechanics, investigating the action of forces on bodies, as in ballistics, aerodynamics, hydrodynamics, rheology, high-pressure and high-vacuum techniques and vibration and elasticity measurement.

May specialise in particular area of mechanics, such as development of rocket control systems, and be designated accordingly.

0-12.30 Heat Physicist.

Conducts research into nature and effects of heat to increase scientific knowledge or to develop or improve materials, products or industrial and other processes:

performs tasks similar to those of *Physicist (general) (0-12.10)* but specialises in heat physics, investigating the measurement, development, transmission and effects of heat, as in thermodynamics, heat transmission and insulation, high- and low-temperature effects and heat radiation.

May specialise in particular area of heat physics, such as reduction of heat loss in engines, and be designated accordingly.

0-12.40 Light Physicist.

Conducts research into nature and effects of light to increase scientific knowledge or to develop or improve materials, products or industrial and other processes:

performs tasks similar to those of *Physicist (general) (0-12.10)* but specialises in light physics, investigating the sources, propagation and effects of light, as in illumination, spectroscopy, colometry, optics, photography and polarisation.

May specialise in a particular area of light physics, such as design of new and improved optical devices, and be designated accordingly.

0-12.50 Sound Physicist.

Conducts research into nature and effects of sound to increase scientific knowledge or to develop or improve materials, products or industrial and other processes:

performs tasks similar to those of *Physicist (general) (0-12.10)* but specialises in sound physics, investigating the propagation, transmission, reproduction and vibration effects of sound, as in ultrasonics, architectural acoustics, sound insulation, suppression, amplification and recording of sound and echo-sounding.

May specialise in a particular area of sound physics such as the generation and application of ultrasonic vibrations.

0-12.60 Electricity and Magnetism Physicist.

Conducts research into nature and properties of electricity and magnetism to increase scientific knowledge or to develop or improve materials, products or industrial and other processes:

performs tasks similar to those of *Physicist (general) (0-12.10)* but specialises in electricity and magnetism, investigating the sources, generation and transmission of electrical energy, the magnetic properties of materials and the generation, transmission and reception of electromagnetic waves, as in electrostatics, piezo-electricity and the design and development of electrical machinery and equipment.

May specialise in a particular area of electricity and magnetism, such as problems associated with the design and development of electricity generating plant.

0-12.70 Electronics Physicist.

Conducts research into nature and behaviour of electrons to increase scientific knowledge or to develop or improve materials, products or industrial and other processes:

performs tasks similar to those of *Physicist (general) (0-12.10)* but specialises in electronics, investigating the mobility, effects and characteristics of electrons; applies results of experimentation to the design and development of electronic equipment in such fields as communications, industrial and office automation and weapons control.

May specialise in a particular area of electronics, such as solid-state electronics.

0-12.80 Nuclear Physicist.

Conducts research into structure and characteristics of atoms, molecules and nuclei to increase scientific knowledge or to discover practical applications of atomic, molecular and nuclear physics:

performs tasks similar to those of *Physicist (general) (0-12.10)* but specialises in atomic, molecular or nuclear physics, investigating properties of atoms and molecules and decay of radioactive nuclei; conducts experiments to discover practical applications of atomic, molecular or nuclear physics in industrial, medical, military or other fields.

May specialise in particular area of nuclear physics such as radioisotopes.

0-12.90 Other Physicists.

This group includes physicists not elsewhere classified, for example those who conduct research into structure and properties of matter in solid state; or specialise in pure research and formulate theories based on analysis of established data to explain relationships between observed physical phenomena and to explain previously unobserved phenomena, or predict results of experiments designed to detect and measure them.

0-13 Physical Scientists Not Elsewhere Classified

Workers in this unit group conduct research and develop practical applications in areas of the physical sciences not covered by those classified elsewhere.

Their functions include:

conducting research into the physical nature of the earth, the nature and history of the earth's crust and the physical nature and properties of the atmosphere and the forces affecting it, and developing practical applications in such fields as radio communications, water conservation, mineral exploitation, civil engineering and weather forecasting;

observing and interpreting celestial phenomena and developing practical applications in such fields as navigation and space exploration;

examining, analysing and classifying minerals and advising on the likely commercial yield of mineral deposits containing gems and precious stones.

0-13.20 Geophysical Scientist.

Conducts research into physical nature of earth, including its atmosphere and hydrosphere, to increase scientific knowledge and to develop practical applications in such fields as radio communications, water conservation, volcanology and mineral exploration:

investigates and measures seismic, gravitational, electrical, thermal and magnetic forces affecting earth and optical and acoustic phenomena in the atmosphere; computes shape, weight, size and mass of earth and estimates composition and structure of its interior; studies nature and activity of volcanoes, glaciers and earthquakes; charts earth's magnetic field and applies data obtained to practical problems in such fields as radio broadcasting and navigation; studies and measures physical properties of the sea, such as density, temperature, light and sound conductivity and flow patterns of tides and currents, and investigates relationships between sea and atmosphere, such as the exchange of thermal energy between them; studies structure of rock formations to locate mineral, gas and oil deposits using physical and electrical testing instruments such as seismograph and magnetometer; studies distribution, disposition and development of waters and of land areas for flood control, soil and water conservation, water supply, water power, drainage, irrigation and other inland water projects; establishes fixed points on earth's surface for navigational chart- and map-making.

May specialise in a particular area of geophysics and be designated accordingly.

0-13.30 Geological Scientist.

Conducts research into nature and history of earth's crust to increase scientific knowledge and to develop practical applications in such fields as mineral exploitation and civil engineering:

studies composition and structure of earth's crust, examining rocks, minerals and fossil remains of plants and animals to identify processes affecting development of the earth, trace evolution of past life and establish nature and chronology of geological formations; studies form of earth's surface and nature and effects of forces which change it, such as erosion, glaciation and sedimentation; explores sea bed, maps its topography and studies its composition, structure and history of rocks and sediments; applies theoretical knowledge and research data to locate and assess development potential of mineral, gas, and oil deposits and underground water resources; applies geological knowledge to problems encountered in civil engineering projects such as construction of dams, bridges, tunnels and large buildings; prepares geological maps and diagrams of regions studied, using aerial photographs where available.

May specialise in a particular area of geology and be designated accordingly.

0-13.40 Meteorological Scientist.

Conducts research into physical nature and properties of the earth's atmosphere and the forces affecting it to increase scientific knowledge and to develop practical applications such as weather forecasts:

studies composition, structure and dynamics of the atmosphere, investigating the direction and speed of air movements, air pressures and temperatures, humidity and other phenomena; investigates the nature of solar and terrestrial (infra-red) radiation and its effects on the atmosphere; studies physical nature and properties of solid and liquid particles suspended in the atmosphere, investigating such phenomena as the process of cloud formation and precipitation and electrical disturbances; conducts experiments in fog dispersal, rainmaking and other types of weather control; studies data on atmospheric conditions obtained from meteorological stations to prepare weather maps and forecasts for advice of aviation, shipping, agriculture and others; studies climatic conditions of earth, or of particular region, by analysing meteorological observations made over extended periods of time, and makes long-range forecasts; employs balloons, rockets and artificial earth satellites and such techniques as spectroscopy, hygrometry, daylight and infra-red photography, radar and radio to obtain data on atmospheric conditions, and directs processing of the data.

May specialise in particular area of meteorological science, such as the structure of the outer atmosphere and how it is affected by solar and cosmic radiation.

0-13.50 *Astronomical Scientist.*

Observes and interprets celestial phenomena to increase scientific knowledge and to develop practical applications in such fields as navigation and space exploration:

studies galaxies, stellar systems, the sun and other stars, planets and their satellites and other celestial phenomena using optical and radio telescopes equipped with cameras, spectrometers, radiometers, photometers, micrometers and other special instruments to determine such characteristics as their sizes, masses, shapes, composition, structures, temperatures, luminosity and motions; computes relative positions and calculates orbits of celestial bodies observed, and prepares mathematical tables for use by air and sea navigators showing positions relative to earth at given times of sun, moon, planets and stars; conducts research into such problems as theory of motions of celestial bodies, relationships between time and space, and evolution and structure of stars, stellar systems and the universe.

May design optical, mechanical and electronic instruments for astronomic research. May design special astronomic research equipment for use in space probes and artificial earth satellites and interpret the data obtained. May specialise in particular area of astronomic science and be designated accordingly.

0-13.90 Other Physical Scientists.

This group includes other physical scientists not elsewhere classified, for example those who specialise in examining, analysing and classifying minerals (including gems and precious stones) or advising on the likely commercial yield from mineral deposits containing gems and precious stones.

0-14 Physical Science Technicians

Workers in this unit group perform auxiliary technical tasks, normally under the direction and supervision of physical scientists, in connection with research in the physical sciences and the development of industrial, medical, military and other practical applications.

Their functions include:

preparing materials and equipment for experiments, tests and analyses;

assisting with or—under supervision—performing experiments, tests and analyses in such fields as physics, chemistry, geology, geophysics, meteorology and astronomy;

applying knowledge of scientific principles to suggest solutions to problems encountered;

taking records, making calculations, preparing charts and graphs and writing reports.

0-14.20 Chemistry Technician.

Performs auxiliary technical tasks, normally under direction and supervision of chemist, in connection with pure research into chemical phenomena or applied chemical research and development work:

assists with or—under supervision—performs tests, analyses and experiments, in such fields as organic, inorganic, physical and analytical chemistry, for such purposes as investigating chemical phenomena, determining composition and properties of substances, discovering and developing new chemical products, new uses for existing products or new methods of production, or controlling industrial processes; sets up equipment for experiments and weighs, measures, mixes, filters or otherwise prepares materials; applies knowledge of principles of chemistry to recognise, study and suggest solutions to problems encountered; records observations and conclusions of tests, analyses and experiments, makes calculations, prepares charts and writes reports.

May maintain laboratory and other equipment.

0-14.30 Physics Technician.

Performs auxiliary technical tasks, normally under direction of physicist, in connection with pure research into physical phenomena or applied physics research and development work:

assists with or—under supervision—performs experiments, tests and analyses in the field of mechanics, heat, light, sound, electricity and magnetism, electronics, nuclear or other branch of physics to investigate the structure and properties of matter, transformation and propagation of energy, relationships between matter and energy and other physical phenomena or to develop industrial, medical, military or other practical applications; sets up equipment for experiments and weighs, measures or otherwise prepares materials; applies knowledge of principles of physics to recognise, study and suggest solutions to problems encountered; records observations and conclusions of tests, analyses and experiments, makes calculations, prepares charts and writes reports.

May maintain laboratory and other equipment.

0-14.90 Other Physical Science Technicians.

This group includes physical science technicians not elsewhere classified, for example those who perform auxiliary technical tasks in connection with research and development work conducted by geological, geophysical, meteorological and astronomic scientists.

0-2/0-3 ARCHITECTS, ENGINEERS AND RELATED TECHNICIANS

Workers in this minor group design buildings and supervise their construction; plan and co-ordinate development of urban areas; plan, design and supervise landscaping; study, design, advise on and supervise the construction of civil engineering structures; study, advise on and develop plant, equipment and processes in electrical, electronic, mechanical, chemical, mining and other engineering fields and carry out technical supervisory functions in connection with the manufacture, construction, installation, operation, maintenance and repair of such plant and equipment; develop and control processes for extraction of metals from their ores, study properties of metals, develop new alloys and advise on metallurgical problems; study, develop and advise on the promotion of efficient, safe and economic utilisation of personnel, materials and equipment; study, plan and advise on the routing and control of road traffic; make trigonometric surveys of the earth's surface and underground areas; prepare technical drawings and maps and perform other technical tasks, normally under supervision, contributory to the work described in the foregoing. They are classified in the unit groups listed below:

0-21	Architects and Town Planners.
0-22	Civil Engineers.
0-23	Electrical and Electronics Engineers.
0-24	Mechanical Engineers.
0-25	Chemical Engineers.
0-26	Metallurgists.
0-27	Mining Engineers.
0-28	Industrial Engineers.
0-29	Engineers Not Elsewhere Classified.
0-31	Surveyors.
0-32	Draughtsmen.
0-33	Civil Engineering Technicians.
0-34	Electrical and Electronics Engineering Technicians.
0-35	Mechanical Engineering Technicians.
0-36	Chemical Engineering Technicians.
0-37	Metallurgical Technicians.
0-38	Mining Technicians.
0-39	Engineering Technicians Not Elsewhere Classified.

Workers with architectural and engineering qualifications frequently are occupied mainly in administrative or managerial work (minor group 2-1), or as teachers (minor group 1-3), patent agents (unit group 1-99) or technical salesmen (unit group 4-31) and are classified accordingly.

0-21 Architects and Town Planners

Workers in this unit group design and supervise the construction of buildings; plan layout and co-ordinate development of urban areas; and plan, design and supervise aesthetic landscaping for parks, road development and other projects.

0-21.20 Building Architect.

Designs buildings and exercises general supervision over their construction:

consults with client to ascertain type and style of building required and advises on cost, design, materials, building time and other relevant considerations; designs building, co-ordinating structural and ornamental features with regard to local regulations and architectural styles, and prepares drawings or scale models to show appearance of completed building; prepares detailed plans and specifications for use of builders; exercises general supervision over and inspects construction work to ensure that building is erected according to specifications.

May draw up bills of quantities for use of builders and undertake surveying tasks during construction. May plan and supervise alterations and repairs to buildings. May specialise in particular types of buildings.

Building construction engineer is classified in 0-22.20.

0-21.30 Town Planner.

Plans layout and co-ordinates development of urban areas:

arranges and supervises collection of data on economic, social, physical and other factors relative to development of area; analyses data to ascertain nature, extent and rate of area's growth and development; consults with appropriate specialists and prepares plans for area development, including zoning of industrial, commercial and residential areas and location of recreational, educational and other community facilities; examines specific proposals affecting area development and makes recommendations or decisions thereon.

May also plan and co-ordinate development of rural areas.

0-21.40 Landscape Architect.

Plans and designs aesthetic layout of land areas for such projects as parks and other recreational facilities, roads, commercial, industrial and residential sites and public buildings:

consults with clients, engineers and architects on overall programme; studies site conditions such as nature of soil, vegetation, rock features, drainage and location of buildings; designs landscape, harmonising improvements with existing land features and buildings and proposed structures; prepares working drawings, specifications and cost estimates for landscaping, including vegetation to be planted and other related site development work; supervises landscaping to ensure that work is carried out according to specifications.

May specialise in a particular type of landscape architecture such as parks landscaping.

0-22 Civil Engineers

Workers in this unit group carry out research and advise on civil engineering problems, design projects and structures such as bridges, dams, docks, roads, airports, railways, waste disposal systems, flood control systems and industrial and other large buildings, and plan, organise and supervise their construction, maintenance and repair.

0-22.10 Civil Engineer (General).

Carries out research, designs and advises on structures such as bridges, dams, docks, roads, airports, railways, waste disposal and flood control systems and industrial and other large buildings, and plans, organises and supervises their construction, maintenance and repair:

> studies project, assesses broad requirements, examines site and determines most suitable location for structure; calculates stresses and strains implicit in or affecting proposed structure, taking account of such factors as estimated load, water pressures, wind resistance, temperature fluctuations and nature of building materials to be used; consults with other specialists, such as mechanical, electrical and chemical engineers and building and landscape architects, regarding technical and aesthetic requirements; designs structure and prepares cost estimates, working plans and specifications, indicating types of materials, earth-moving, hoisting and other equipment required; consults with clients, own management and government authorities to secure approval of plans; prepares work schedules and directs operations as work proceeds; plans, organises and supervises maintenance and repair work on existing structures.

0-22.20 Building Construction Engineer.

Designs structures of large buildings and plans, organises and supervises their erection, maintenance and repair:

> performs tasks similar to those of *Civil engineer (general) (0-22.10)* but specialises in structural design, erection, maintenance and repair of large industrial, commercial, public and residential buildings, such as factories, concert halls and office and apartment blocks.
>
> May specialise in particular type of construction, such as industrial buildings, and be designated accordingly.

0-22.30 Highway and Street Construction Engineer.

Designs highways and streets and plans, organises and supervises their construction, maintenance and repair:

> performs tasks similar to those of *Civil engineer (general) (0-22.10)* but specialises in design, construction, maintenance and repair of municipal, rural or trunk roads; consults with government officials and other specialists in designing efficient and safe road traffic systems.
>
> May design, construct, maintain and repair bridges, viaducts, tunnels and other roadway structures. May specialise in construction of particular type of road and be designated accordingly.

0-22.35 Aerodrome Construction Engineer.

Designs airports and landing strips and plans, organises and supervises their construction, maintenance and repair:

> performs tasks similar to those of *Civil engineer (general) (0-22.10)* but specialises in airport design and the construction, maintenance and repair of aeroplane runways; consults with *Building construction engineer (0-22.20)* to co-ordinate design and construction of hangars, control towers and other airport structures.

0-22.40 Railway Construction Engineer.

Designs railroads, terminals and other railway structures and plans, organises and supervises their construction, maintenance and repair:

> performs tasks similar to those of *Civil engineer (general) (0-22.10)* but specialises in design, construction, maintenance and repair of railway roadbeds, yards, terminals and other railway structures and in laying, maintenance and repair of railway tracks.
>
> May design and supervise construction, maintenance and repair of railway bridges, viaducts and tunnels. May survey rail traffic problems and recommend measures for improving efficiency and safety of railway system.

0-22.45 Bridge Construction Engineer.

Designs bridges and plans, organises and supervises their construction, maintenance and repair:

> performs tasks similar to those of *Civil engineer (general) (0-22.10)* but specialises in design, construction, maintenance and repair of fixed, swing, bascule and other bridges and related structures such as viaducts and road overpasses.

0-22.50 Sanitary Engineer.

Designs engineering structures and equipment related to public health and hygiene, such as are required for water-supply and waste-disposal systems, and plans, organises and supervises their construction, operation, maintenance and repair:

> performs tasks similar to those of *Civil engineer (general) (0-22.10)* but specialises in design, construction, operation, maintenance and repair of water filtration and distribution plants, sewage-disposal systems, garbage-reduction equipment, drainage systems, insect-proof buildings and other constructions related to public health; advises on disposal of obnoxious gases, greases, chemicals and other industrial waste.
>
> May inspect and regulate sanitary conditions of public places, such as markets, parks and camps.

0-22.55 Hydraulics Engineer.

Designs hydro-power, water supply, irrigation, inland waterways and related projects and plans, organises and supervises their construction, maintenance and repair:

> performs tasks similar to those of *Civil engineer (general) (0-22.10)* but specialises in design, construc-

tion, maintenance and repair of dams and other structures and equipment for hydroelectric power projects, canals and locks, irrigation, land drainage and flood control systems, reservoirs, pumping stations and other structures and equipment for control and use of water.

May specialise in particular area of hydraulic engineering, such as irrigation systems, and be designated accordingly.

0-22.60 Soil Mechanics Engineer.

Examines soils and ascertains their effect on construction work and suitability as building materials:

takes samples of surface and subsurface soils for analysis; calculates and advises on foundations required for construction projects, required slopes of cuttings and thicknesses of soil dams and retaining walls, and other applications of soil mechanics to construction work; prepares specifications of soil mixtures to be used for roads, embankments and other constructions.

0-22.90 Other Civil Engineers.

This group includes civil engineers not elsewhere classified, for example those who perform tasks similar to those of *Civil engineer (general) (0-22.10)* but specialise in the design, construction and maintenance of tunnels, wharves, docks and harbour breakwaters, lighthouses, chimney stacks, towers and pylons; or in the dredging of harbours and ship channels.

0-23 Electrical and Electronics Engineers

Workers in this unit group carry out research on electrical and electronics engineering problems, design and advise on electrical and electronic systems and equipment, plan and supervise development, construction, installation, operation, maintenance and repair of electrical and electronic equipment.

0-23.05 Electrical Engineer (General).

Carries out research on electrical engineering problems, designs and advises on electrical systems and equipment, and plans and supervises their development, construction, installation, operation, maintenance and repair:

studies operating requirements for electric power generation and distribution equipment, industrial and domestic electrical machinery and appliances and other electrical equipment, and engages in research and development work; advises employer, associates or clients on electrical engineering matters; consults with specialised electrical engineers, electronics, civil and mechanical engineers, physicists and industrial designers, as necessary; designs systems and equipment, prepares working drawings and specifications indicating materials to be used and method of manufacture, and frequently supervises technical aspects of manufacturing processes; estimates labour, materials and other costs of manufacture, installation, operation, maintenance and repair; supervises installation, maintenance and repair of electrical equipment and checks completed work to ensure compliance with specifications and safety standards.

0-23.10 Electronics Engineer (General).

Carries out research on electronics engineering problems, designs and advises on electronic devices and equipment and plans and supervises their development, construction, installation, operation, maintenance and repair:

studies operating requirements for radio, television and radar equipment, telecommunications installations, automatic control and guidance systems and other electronic equipment, and engages in research and development work; performs other tasks similar to those of *Electrical engineer (general) (0-23.05)*.

0-23.20 Power Generation Engineer.

Studies, designs and advises on electricity generating systems and plant and plans and supervises their construction, operation, maintenance and repair:

performs tasks similar to those of *Electrical engineer (general) (0-23.05)* but specialises in electricity generating systems and plant.

0-23.30 Power Distribution and Transmission Engineer.

Studies, designs and advises on systems and equipment for transmission and distribution of electric power and plans and supervises their development, construction, maintenance and repair:

performs tasks similar to those of *Electrical engineer (general) (0-23.05)* but specialises in systems and equipment for transmission and distribution of electric power.

0-23.40 Telecommunications Engineer.

Studies, designs and advises on telecommunications systems and equipment and plans and supervises their development, construction, installation, operation, maintenance and repair:

performs tasks similar to those of *Electronics engineer (general) (0-23.10)* but specialises in telephone and telegraph systems based on line or radio communication.

0-23.90 Other Electrical and Electronics Engineers.

This group includes electrical and electronics engineers not elsewhere classified, for example those who perform tasks similar to those of *Electrical engineer (general) (0-23.05)* or *Electronics engineer (general) (0-23.10)* but specialise in the design, production, operation or maintenance of particular apparatus or products such as electronic calculating and data-processing equipment; radar, radio or television; signalling and automatic control systems; electric traction equipment; electric motors; domestic electrical appliances; or other electrical or electronic apparatus (excluding power generation, transmission and distribution and telecommunications equipment).

0-24 Mechanical Engineers

Workers in this unit group carry out research on, design and advise on mechanically functioning plant and equipment, such as machine tools, engines, vehicles, heating, ventilating and refrigerating installations, and plant and equipment for the release, control and utilisation of nuclear

energy, and plan and supervise their development, manufacture, construction, installation, operation, maintenance and repair.

0-24.10 Mechanical Engineer (General).

Carries out research on, designs and advises on mechanically functioning plant and equipment, and plans and supervises their development, manufacture, construction, installation, operation, maintenance and repair:

studies operating requirements for mechanically functioning plant and equipment such as machine tools, engines, vehicles, heating, ventilating and refrigerating plant, and plant and equipment for the release, control and utilisation of nuclear energy, and engages in research and development work; advises employer, associates or clients on mechanical engineering matters; consults with other specialists, such as physicists, metallurgists, electrical engineers and industrial designers; designs plant and equipment, prepares working drawings and specifications, indicating materials to be used and method of manufacture, and frequently supervises technical aspects of manufacturing processes; estimates labour, materials and other costs of manufacture, installation, operation, maintenance and repair; supervises installation, maintenance and repair of mechanically functioning plant and equipment and checks completed work to ensure compliance with specifications and safety standards.

0-24.20 Industrial Machinery and Tools Engineer.

Studies, designs and advises on machinery and tools for manufacturing, mining, construction, agricultural work, printing and other industrial purposes, and plans and supervises their development, manufacture, installation, operation, maintenance and repair:

performs tasks similar to those of *Mechanical engineer (general) (0-24.10)* but specialises in industrial machinery and tools.

0-24.30 Mechanical Engineer (Motors and Engines, except Marine).

Studies, designs and advises on steam, internal combustion and other non-electric motors and engines as used for propulsion of railway locomotives, road vehicles or aeroplanes, or for driving industrial and other machinery, and plans and supervises their development, manufacture, installation, maintenance and repair:

performs tasks similar to those of *Mechanical engineer (general) (0-24.10)* but specialises in motors and engines.

May specialise in particular type of engine, such as diesel or petrol engines, or area of application, such as aeronautics or automobiles.

Engineers specialising in electric motors are classified in 0-23.90.

0-24.40 Marine Engineer.

Studies, designs and advises on ships' propulsion systems, power plants, heating and ventilating systems, steering gear, pumps and other mechanical and electrical equipment, and plans and supervises their development, construction, installation, maintenance and repair:

performs tasks similar to those of *Mechanical engineer (general) (0-24.10)* but specialises in marine engineering; consults with *Ship construction engineer (0-24.50)* to co-ordinate design of vessel.

A marine engineer who is a member of a ship's crew is classified in unit group 0-43.

0-24.50 Ship Construction Engineer.

Studies, designs and advises on the hulls and superstructures of ships and other vessels, and plans and supervises their development, construction, maintenance and repair:

performs tasks similar to those of *Mechanical engineer (general) (0-24.10)* but specialises in design and construction of ships and other vessels; consults with *Marine engineer (0-24.40)* to co-ordinate design of vessel.

May specialise in particular type of vessels such as warships, cargo ships or passenger liners.

0-24.60 Aeronautical Engineer.

Studies, designs and advises on airframes, undercarriages and other equipment for aircraft, and plans and supervises their development, construction, maintenance and repair:

performs tasks similar to those of *Mechanical engineer (general) (0-24.10)* but specialises in aeronautical applications; consults with aero-engine specialist (classified in 0-24.30) to co-ordinate design of aircraft.

May specialise in particular type of aircraft, such as helicopters or cargo, passenger or military aircraft.

0-24.70 Automotive Engineer.

Studies, designs and advises on road vehicle bodies, suspension systems, brakes and other components, and plans and supervises their development and manufacture:

performs tasks similar to those of *Mechanical engineer (general) (0-24.10)* but specialises in road vehicles such as passenger cars, commercial or military vehicles, motor coaches, farm tractors and motor cycles; consults with automobile engine specialist (classified in 0-24.30) to co-ordinate design of vehicle.

0-24.80 Heating, Ventilation and Refrigeration Engineer.

Studies, designs and advises on heating, ventilation and refrigeration systems and equipment, and plans and supervises their development, manufacture, installation, maintenance and repair:

performs tasks similar to those of *Mechanical engineer (general) (0-24.10)* but specialises in systems and equipment for heating, ventilating and air-conditioning industrial structures and commercial, residential and other buildings, and for making ice and cooling storage places, including ships' cargo holds.

May perform some functions of *Electrical engineer (general) (0-23.05)*.

0-24.85 Nuclear Power Engineer.

Studies, designs and advises on mechanical plant and equipment for the release, control and utilisation of nuclear energy, and plans and supervises their development, manufacture, installation, maintenance and repair:

performs tasks similar to those of *Mechanical engineer (general) (0-24.10)* but specialises in nuclear reactors, shielding systems, processing of radioactive materials, disposal of radioactive waste and other mechanical engineering problems associated with the exploitation of nuclear energy.

0-24.90 Other Mechanical Engineers.

This group includes mechanical engineers not elsewhere classified, for example those who perform tasks similar to those of *Mechanical engineer (general) (0-24.10)* but specialise in the design, production or maintenance of particular apparatus or products such as precision instruments; cameras and projectors; typewriters, desk calculators, cash registers and ticket machines; duplicating and copying machines; mechanically functioning medical equipment; or special space vehicles and mechanical equipment for space exploration and travel.

0-25 Chemical Engineers

Workers in this unit group carry out research, develop and advise on processes for producing on a commercial scale the chemical or physical transformation of substances, as in manufacture of chemicals, petroleum derivatives, metals, food products and synthetic materials, and design appropriate manufacturing plant and plan and supervise its construction, operation, maintenance and repair.

0-25.10 Chemical Engineer (General).

Carries out research on chemical engineering problems and develops and advises on processes for producing on a commercial scale the chemical or physical transformation of substances, as in the manufacture of chemicals, petroleum derivatives, metals, food products and synthetic materials, designs appropriate manufacturing plant and plans and supervises its construction, operation, maintenance and repair:

engages in research relating to chemical and physical transformation of matter on a commercial scale to develop new or improved processes and manufacturing plant, consulting with other specialists such as chemists, physicists, mechanical and civil engineers; advises employer, associates and clients on chemical engineering matters; designs new or improved manufacturing plant and specifies sequence of physical transformation operations such as heating, cooling, crushing, mixing, separating, distilling and filtering, and chemical processing such as by hydrolysis, oxidation, electrolysis, polymerisation, fermentation, dehydration and absorption; supervises construction and installation of plant and inspects and tests completed work to ensure compliance with specifications and safety standards; plans and supervises operation, maintenance and repair of processing plant; collaborates with *Chemists* (unit group 0-11) and other specialists in application of procedures for quality control of raw materials and products.

0-25.20 Chemical Engineer (Petroleum).

Studies, develops and advises on processes for the refining of crude oil, designs appropriate plant and plans and supervises its construction, operation, maintenance and repair:

performs tasks similar to those of *Chemical engineer (general) (0-25.10)* but specialises in the refining of crude oil (petroleum) and the production of derivatives such as petrol and paraffin fuels and lubricating oils and greases.

0-25.90 Other Chemical Engineers.

This group includes chemical engineers not elsewhere classified, for example those who perform tasks similar to those of *Chemical engineer (general) (0-25.10)* but specialise in the development and efficient utilisation of fuels; the design, construction, operation and maintenance of plant for the physical and chemical transformation of matter for the manufacture of a particular type of commodity such as antibiotics, plastics, explosives, rubber or pigments, or of plant for production and distribution of fuel gas for industrial, domestic and other purposes.

0-26 Metallurgists

Workers in this unit group advise on metallurgical problems and develop and control processes for the extraction of metals from their ores, study the properties and engineering characteristics of metals and develop new alloys, and develop and supervise metal manufacturing processes for making finished metal products.

0-26.20 Extractive Metallurgist.

Studies, develops, advises on and controls the application of processes for the extraction of metals from their ores:

engages in research to develop new and improved ore reduction and metal refining processes; advises employer, associates or clients on matters relating to extractive metallurgy; investigates problems in reduction of particular ores to determine methods of producing metals of required quality in commercial quantities; decides, and controls by tests and analyses, temperatures, mixtures and other variable factors during ore reduction and refining processes.

May specialise in ferrous or non-ferrous metals or in a particular metal.

0-26.30 Physical Metallurgist.

Studies properties of metals and alloys, develops new alloys and advises on and supervises technical aspects of metal and alloy manufacture and processing:

studies metals and alloys using such techniques as microscopy, X-ray diffraction and spectroscopy and employing tension, compression, impact, fatigue and other test devices to determine their crystalline structure, alloy particle dispersion, ductility, malleability, weight-strength ratio and other physical characteristics and engineering properties; advises employer, associates or clients on matters relating to physical metallurgy; develops new alloys and new and improved processes for obtaining metals with required characteristics, consulting with other specialists such as chemists, physicists and engineers; supervises technical aspects of metal-making and treating processes such as melting, alloying, hot- and cold-rolling, casting, forging, drawing, heat-treating and plating; tests metal and alloy samples, semi-finished and finished articles for impurities, fractures and other defects and to ensure compliance with specifications.

May specialise in ferrous or non-ferrous metals, or in a particular application of physical metallurgy such as casting.

0-26.90 Other Metallurgists.

This group includes metallurgists not elsewhere classified, for example those who specialise in metallurgical problems of radioactive materials.

0-27 Mining Engineers

Workers in this unit group carry out research on mining engineering problems, supervise prospecting for minerals such as coal, iron, copper, gold, platinum, silver, petroleum, gas, stone, clay, salt or gems, and plan, organise, supervise and advise on extraction of minerals from the earth and their preparation for distribution or processing.

Workers who specialise in geological and geophysical surveys to locate mineral deposits are classified in unit group 0-13.

0-27.10 Mining Engineer (General).

Carries out research on mining engineering problems, advises on the extraction of metallic and solid non-metallic minerals from the earth, supervises mineral prospecting and plans, organises and supervises mineral mining operations and preparation of minerals for distribution or processing:

> engages in research to develop new and improved methods of mineral extraction; advises employer, associates or clients on mining engineering matters; supervises exploration and prospecting to locate, identify and evaluate mineral deposits, makes geological tests and topographical surveys to ascertain location, extent and slope of deposits, character of surrounding strata and economic practicability of extraction; consults with other specialists such as geologists, metallurgists and civil and mechanical engineers; determines most suitable method of extraction and type of machinery and equipment to be used; plans layout and supervises construction of underground shafts and tunnels and surface developments such as transportation facilities, water and power supplies and mineral-treating plant; supervises mining or quarrying operations and the separation, cleaning, grading, reduction and other treatment of minerals preparatory to distribution or further processing.

0-27.20 Coal-Mining Engineer.

Studies and advises on coal-mining engineering problems and plans, organises and supervises coal-mining operations and preparation of coal for distribution:

> performs tasks similar to those of *Mining engineer (general) (0-27.10)* but specialises in the mining of coal and its preparation for distribution.

0-27.30 Metal-Mining Engineer.

Studies and advises on metal-mining engineering problems and plans, organises and supervises metal-mining operations and preparation of metallic ores for distribution or processing:

> performs tasks similar to those of *Mining engineer (general) (0-27.10)* but specialises in the mining and preparation for distribution of iron, copper, gold, lead, silver, tin and other metals.

Engineers who specialise in the extraction of minerals from alluvial deposits by sluicing or dredging are classified in 0-27.90.

0-27.40 Petroleum and Natural Gas Engineer.

Studies and advises on petroleum and natural gas extraction engineering problems, and plans, organises and supervises the extraction, storage, initial treatment and transportation of petroleum and natural gas:

> engages in research to develop new and improved methods of extraction of petroleum and natural gas; advises employer, associates or clients on matters relating to the extraction of petroleum and natural gas; studies data from geological and geophysical surveys, consults other specialists such as geologists, geophysicists and mechanical engineers, and determines drilling site and type of derrick and drilling equipment required; plans, organises and supervises drilling operations and directs testing of boreholes to determine pressures, temperatures, strata encountered and other factors; devises methods for bringing wells into production by controlling flow of oil or gas and treating oil to remove sediment and water; supervises operation and maintenance of producing wells and associated storage tanks and pipe transport system; compiles logs, production records and other data for each well and conducts special studies on subjects such as salt-water encroachment.
>
> May engage in geological and geophysical surveys to ascertain location and size of petroleum or natural gas deposits and economic practicability of extraction.

0-27.90 Other Mining Engineers.

This group includes mining engineers not elsewhere classified, for example those who perform tasks similar to those of *Mining engineer (general) (0-27.10)* but specialise in mining or quarrying solid minerals (other than coal and metallic minerals) such as stone, marble, clay, salt, gravel or diamonds; extracting subsurface water or sulphur and other solid minerals by drilling boreholes; or extracting tin, gold, diamonds or other solid minerals from alluvial deposits by sluicing and dredging.

0-28 Industrial Engineers

Workers in this unit group study, advise on and implement methods to promote the efficient, safe and economic utilisation of personnel, materials and equipment.

Their functions include:

studying and advising on the organisation and layout of, and methods employed in, production processes and commercial and administrative procedures;

planning and conducting time and motion studies;

developing work measurement methodology;

advising on and initiating measures to prevent industrial accidents and diseases.

0-28.10 Industrial Efficiency Engineer (General).

Studies and advises on the organisation of production processes and commercial and administrative procedures, plans and supervises time and motion studies and makes recommendations to promote efficiency and supervises their implementation:

consults with management and supervisory personnel to ascertain production, business or administrative objectives and to identify problems; studies existing or proposed organisation, processes and procedures, including product design, plant or office layout, machine utilisation, materials handling, work allocation, cost accounting, inspection and quality control; plans and supervises detailed time and motion studies of particular operations and tasks; analyses and co-ordinates data obtained and initiates or recommends changes in organisation, work procedures, methods, machine utilisation and other factors to achieve more efficient and economic use of personnel, materials and equipment.

0-28.20 Methods Engineer.

Analyses industrial, commercial and other projects and administrative procedures, makes recommendations regarding organisation, methods of work and sequence of operations and supervises their implementation:

studies specifications, drawings, plans and other material relating to project and identifies essential operations; determines most efficient and economic organisation and layout, production methods and commercial or administrative procedures, and itemises required sequence of operations; specifies type of industrial, office or other machinery to be used.

0-28.30 Time and Motion Study Engineer.

Studies, develops and advises on work measurement procedures, plans and supervises time and motion studies, makes recommendations to promote efficiency and supervises their implementation:

analyses work procedures and formulates methodology for studying job methods and measuring worker performance; conducts or plans and supervises time and motion studies, ensuring correct application of established methodology; analyses data obtained from time and motion studies to identify and eliminate unnecessary effort and to establish time and production standards as a basis for assessing work loads, job ratings and wage systems; initiates or recommends changes in work procedures, job loads and rating and wage systems to achieve more efficient and economic use of personnel.

May specialise in motion or time study and be designated accordingly.

0-28.90 Other Industrial Engineers.

This group includes industrial engineers not elsewhere classified, for example those who specialise in the prevention of industrial accidents and diseases by identifying potential hazards and developing and introducing safety procedures and devices, and those who specialise in the efficient layout of industrial plant or commercial establishments.

0-29 Engineers Not Elsewhere Classified

Workers in this unit group perform engineering functions not performed by those classified elsewhere.

Their functions include:

studying, designing, developing, controlling and advising on processes and plant for the manufacture of bricks, pottery, glassware, foods or beverages;

studying, advising on and supervising the application of engineering technology to agricultural problems;

studying, planning and advising on the routing and control of road traffic to promote safety and minimise congestion.

0-29.20 Ceramics and Glass Technologist.

Carries out research and advises on, designs, develops and controls processes and plant for the manufacture of bricks, pottery and glassware:

carries out research into, and develops and designs new and improved processes and machinery for manufacturing ceramics and glass; advises employer, associates or clients on the manufacture of ceramic and glass products; tests physical and chemical properties of materials and selects required combination for type and quality of product; determines specifications for baking, glazing, and other manufacturing processes; tests finished products to ensure compliance with specifications concerning texture, colour, durability, glazing, heat resistance and other characteristics.

May specialise in a particular type of product and be designated accordingly.

0-29.30 Agricultural Engineer.

Studies and advises on the application of engineering technology to agricultural problems, designs agricultural machinery, structures and equipment and plans and supervises their manufacture, construction and installation:

studies operating requirements for agricultural machinery, structures and equipment such as farm buildings, electrical services, cultivating, spraying and harvesting machines, crop-processing plant and irrigation, drainage and flood control systems, and engages in research and development work; advises employer, associates or clients on agricultural engineering matters; consults with other specialists such as civil and mechanical engineers and agronomists; designs machinery, structures and equipment and prepares working drawings and other specifications, indicating material to be used and methods of manufacture and construction; supervises construction or manufacture and installation of structures and equipment and tests completed work to ensure compliance with specifications and safety standards.

Engineers specialising in civil, mechanical or other particular types of engineering problems affecting the agricultural industry are classified elsewhere in minor group 0-2/0-3.

0-29.40 Food and Drink Technologist.

Carries out research and advises on, designs, develops and controls processes and plant for the manufacture and processing of foods and beverages:

engages in research into the manufacture and processing of food and drink, the development of new and improved processes and the design of associated plant and machinery; advises employer, associates or clients on the manufacture and processing of foods and beverages; analyses raw materials and selects required mixtures for type of product; consults with other specialists such as chemists, mechanical engineers and packaging technologists; determines grinding, mixing, cooking, fermentation, dehydration and other processing specifications; tests foodstuffs and beverages during and at completion of processing or manufacture to ensure compliance with specifications concerning flavour, colouring, consistency and other characteristics.

0-29.50 Traffic Planner.

Studies, plans and advises on the routing and control of road traffic to promote safety and minimise congestion:

consults with highway construction engineers and other specialists concerned with traffic planning problems; conducts surveys to determine directions and volumes of traffic flows and to detect congested conditions, and notes possible alternative routing and traffic control systems; evaluates available data concerning load-bearing capacities of roads and bridges and feasibility of road-widening and other structural alterations in relation to present and estimated future traffic loads; plans and conducts experimental alternative routing and control schemes designed to improve safety for road users and pedestrians and relieve traffic congestion; analyses results of experiments, prepares reports and submits recommendations concerning road facilities, traffic routing and control systems.

0-29.90 Other Engineers.

This group includes engineers not elsewhere classified, for example those who study, design, develop, control and advise on processes and plant for the manufacture or processing of textiles, leather products, wood or paper.

0-31 Surveyors

Workers in this unit group survey the earth's surface, natural topography and man-made structures, and underground areas, and prepare maps and charts.

Their functions include:

surveying land surfaces to determine boundaries and exact locations, delineate topographic features and otherwise measure land areas for such purposes as mapmaking and construction work;

surveying mines and delineating surface and underground features to control direction and extent of mining;

surveying sea, river and lake beds for such purposes as chart making, determining navigable channels and planning construction of marine structures;

analysing aerial photographs to prepare or revise topographic maps and charts.

Quantity surveyor is classified in 0-33.20 and valuation surveyor in unit group 4-43.

0-31.10 Surveyor, General.

Surveys earth's surface, natural topography and man-made structures, and underground areas to delineate features and determine exact locations and measurements for such purposes as mapmaking, construction work and mining:

studies available maps, plans, deeds, notes and other records, calculates survey requirements and plans surveys accordingly; conducts surveys to determine exact locations and measurements of points, elevations, lines, angles, areas, volumes, contours and other features of land surfaces, underground or underwater areas and buildings, using theodolites, compasses, plane tables and other surveying instruments; records data obtained, verifying accuracy by calculations, and makes sketches of area surveyed; prepares detailed reports and drawings.

0-31.20 Land Surveyor.

Surveys land surfaces to determine boundaries and exact locations, delineate topographic features and man-made structures and otherwise measure land areas for such purposes as mapmaking and construction work:

performs tasks similar to those of *Surveyor (general) (0-31.10)* but specialises in land surveying.

0-31.30 Mine Surveyor.

Surveys mines and delineates surface and underground features to control direction and extent of mining:

performs tasks similar to those of *Surveyor (general) (0-31.10)* but specialises in mining surveying, delineating surface and underground features of coal, ore and other mines for such purposes as calculating locations and volumes of deposits, driving and connecting underground shafts and passages and making plans of workings.

0-31.40 Hydrographic Surveyor.

Surveys sea, river and lake beds to delineate underwater topographic features for such purposes as chart making, determining navigable channels and planning construction and repair of harbours, piers, breakwaters and other marine structures:

performs tasks similar to those of *Surveyor (general) (0-31.10)* but specialises in hydrographic surveying.

0-31.50 Photogrammetrist.

Analyses photographs and survey data to prepare and revise topographic maps and charts:

prepares original and revises existing topographic maps and charts from aerial and other photographs, applying standard mathematical formulae and photogrammetric techniques to identify, scale and orient ground control points, elevations and other topographic features.

May prepare relief models of areas photographed.

0-31.90 Other Surveyors.

This group includes surveyors not elsewhere classified, for example those who specialise in planning and conducting aerial photographic surveys.

0-32 Draughtsmen

Workers in this unit group prepare technical drawings and maps and copy drawings and paintings onto printing plates.

Their functions include:

preparing working drawings from designers' sketches and specifications for such purposes as manufacture and installation of machinery and equipment or for construction of buildings, bridges, dams, roads and other civil engineering projects;

preparing topographical, political, economic, nautical and other maps and charts from survey and other data;

drawing technical illustrations for reference works, brochures and technical manuals dealing with assembly, installation, operation, maintenance and repair of machinery and other equipment;

copying drawings and paintings onto stone or metal plates for printing.

0-32.10 Draughtsman, General.

Prepares accurate working plans and detailed drawings for engineering, construction, manufacturing or other projects, based on designer's sketches and specifications, and prepares charts and working drawings for other purposes:

examines designer's sketch and specifications and makes necessary supplementary calculations of dimensions, surfaces, volumes and other factors; correlates the calculated dimensions of parts of the product or structure, and consults designer regarding design adjustments that appear necessary; prepares accurate working and detailed drawings, making use of knowledge of materials, manufacturing processes, construction and engineering practices to show all necessary specifications for manufacture of machinery and equipment, for construction of buildings, bridges, dams, roads and other civil engineering projects.

0-32.20 Mechanical Draughtsman.

Prepares engineering working drawings from designer's sketches and specifications for manufacture of machines, mechanical devices and related products:

performs tasks similar to those of *Draughtsman (general) (0-32.10)* but specialises in preparing working drawings and detailed specifications for the manufacture of jigs and tools, machinery, engines, motor vehicles, aeroplanes, ships, gearing and suspension systems, pumps and other mechanical devices and related equipment.

May specialise in preparing working drawings for the manufacture or construction of particular engineering products, such as jigs and tools, aeroplanes or ships, and be designated accordingly.

0-32.30 Electrical Draughtsman.

Prepares working drawings from designer's sketches and specifications for manufacture and installation of electrical and electronic machinery and equipment:

performs tasks similar to those of *Draughtsman (general) (0-32.10)* but specialises in preparing working drawings and detailed specifications for the manufacture, installation and wiring of electrical machinery and appliances, switchgear, electronic equipment and other electrical products.

May specialise in preparing working drawings for manufacture and installation of electronic equipment and be designated accordingly.

0-32.40 Civil Engineering Draughtsman.

Prepares working drawings from designer's sketches and specifications for use in civil engineering projects:

performs tasks similar to those of *Draughtsman (general) (0-32.10)* but specialises in preparing working drawings and detailed specifications for the construction of bridges, dams, tunnels, railways, roads, industrial and other large buildings, waste disposal and flood control systems and other civil engineering projects.

May specialise in preparing working drawings for construction of large steel-framed or reinforced concrete structures and be designated accordingly.

0-32.50 Architectural Draughtsman.

Prepares working drawings from architect's sketches and specifications for construction of buildings:

performs tasks similar to those of *Draughtsman (general) (0-32.10)* but specialises in preparing working drawings and detailed specifications for the construction of buildings.

0-32.60 Cartographical Draughtsman.

Prepares maps and charts from survey and other data:

compiles data from surveys, aerial photographs, reference maps, land titles, and other records concerning nature of topography, location of boundaries, communications networks or other items to be represented on map or chart; determines suitable scales and reduces information selected for map or chart according to scales adopted; prepares, revises and copies topographical, political, climatic, economic, sociological, nautical and other maps and charts.

May specialise in a particular type of map or chart and be designated accordingly.

0-32.70 Technical Illustrator.

Draws technical illustrations for brochures, reference works and technical manuals dealing with assembly, installation, operation or use, maintenance and repair of machinery and other equipment:

examines machine, equipment or product to be illustrated, blueprints and specifications, photographs or mock-ups, and other relevant material and extracts necessary drafting data; determines drafting methods and techniques appropriate to type of illustration required and specified reproduction process; prepares schematic, perspective, sectional, exploded and other drawings to show technical features such as functions, relationships and assembly sequences of component parts of object illustrated or to illustrate methods of operation and adjustment, maintenance procedures and safety precautions.

0-32.80 Lithographic Artist.

Sketches designs in black and white or colour for preparation of lithographic stones, photo-engraving and other printing processes:

reproduces by hand multi-colour designs, each colour section separately, and assembles complete sketch for photo-engraver; traces designs for transfer to wood printing blocks or printing rollers; changes colour and tone values of copy to be reproduced and adds detail or colour to photographic or lithographic press plates.

May draw material to be lithographed on original drawing stone or plate, fill in and touch up solid parts of images and broken lines using pen and tusche (special ink).

0-32.90 Other Draughtsmen.

This group includes draughtsmen not elsewhere classified, for example those who specialise in preparing working drawings for the installation of heating and ventilating systems or preparing maps, diagrams, profiles and cross-sections to show geological stratigraphy and location of mineral deposits.

0-33 Civil Engineering Technicians

Workers in this unit group perform technical tasks, normally under the direction and supervision of civil engineers, building architects or surveyors, contributory to planning and execution of building and civil engineering projects, including new construction, repair and maintenance.

Their functions include:

estimating quantities and costs of building materials and labour required for execution of construction projects and preparing bills of quantities;

performing technical tasks contributory to execution of surveys and preparation of survey reports;

representing building architects on construction sites to ensure compliance with design specifications and maintenance of desired standards of materials and workmanship;

applying knowledge of building and civil engineering theory and practices to recognise and solve problems arising in the course of their work.

Civil engineering draughtsman is classified in 0-32.40 and *Architectural draughtsman* in 0-32.50.

0-33.10 Civil Engineering Technician (General).

Performs technical tasks, normally under direction and supervision of civil engineer or building architect, contributory to planning and execution of building and civil engineering projects, including new construction, repair and maintenance:

assists in site investigations, takes and records measurements, tests soil samples and performs detailed calculations contributory to preparation of designs and specifications for construction, repair and maintenance of buildings and civil engineering structures; estimates quantities and costs of building materials and labour required for alternative methods of construction; when method of construction is determined, prepares detailed estimates of quantities and costs of materials and labour required and assists with preparation of tender; inspects and tests building materials received from suppliers to ensure that quality standards are maintained; assists with preparation of work schedules, inspects construction work in progress to ensure compliance with specifications and estimates amount and costs of work done and work remaining; applies knowledge of building and civil engineering theory and practices to recognise and solve problems arising.

0-33.20 Quantity Surveyor.

Estimates quantities and costs of building materials and labour required for execution of construction projects and prepares bills of quantities:

examines designer's drawings and specifications and estimates quantities and costs of building materials, labour and services required to execute construction, using knowledge of building construction methods, range of materials available and current labour costs and practices; prepares bill of quantities, describing every item needed for project in detail and indicating the quantities required; visits site periodically to estimate value of work completed prior to issue of certificates for interim payments to contractor; examines completed project, makes measurements and calculations, adjusts any variations from original contract and assesses final cost.

May analyse comparative advantages and estimate costs of using different methods of construction or different materials. May assist with pricing of tenders and prepare or check final accounts.

0-33.30 Surveyor's Technician.

Performs technical tasks under direction and supervision of surveyor contributory to execution of surveys and preparation of survey reports:

assists in field and site surveys, regulates and adjusts survey instruments, and takes and records measurements and other data; performs detailed calculations and assists with preparation of survey reports.

0-33.40 Clerk of Works.

Represents building architect on construction site to ensure compliance with design specifications and maintenance of desired standards of materials and workmanship:

consults with site manager to confirm programme of work, working levels and building lines; inspects work as project proceeds to ensure compliance with design specifications and maintenance of desired standards of materials and workmanship, making practical checks and tests using knowledge of theory and practical techniques of building; reports to and consults architect on progress and standards of work and deviations from original design; transmits instructions to site manager concerning work necessary to remedy defects discovered and advises him on queries arising from design specifications; records details of all agreed deviations from original contract.

0-33.90 Other Civil Engineering Technicians.

This group includes civil engineering technicians not elsewhere classified, for example those who visit different construction sites to make measurements, tests and observations to ensure that work done and materials used conform with specifications, to assist contractor in interpretation of working plans and specifications and arrange deviations from specifications to meet regulations governing construction.

0-34 Electrical and Electronics Engineering Technicians

Workers in this unit group perform technical tasks, normally under the direction and supervision of electrical or electronics engineers, contributory to the design, development, construction, installation, maintenance and repair of electrical and electronic systems and equipment.

Their functions include:

assisting in research and development work concerning electrical and electronic systems and equipment;

preparing detailed estimates of quantities and costs of materials and labour required for manufacture and installation;

assisting with technical supervision of manufacture, installation and utilisation, maintenance and repair of electrical and electronic systems and equipment;

applying knowledge of electrical and electronics engineering theory and practices to recognise and solve problems arising in course of their work.

Electrical fitters, electronics fitters, radio and television repairmen and related workers are classified in minor group 8-5.

0-34.05 Electrical Engineering Technician (General).

Performs technical tasks, normally under direction and supervision of electrical engineer, contributory to design, development, construction, installation, maintenance and repair of electrical systems and equipment:

sets up and carries out experiments, makes tests, takes readings, performs calculations, adjusts instruments, records observations and otherwise assists in research and development work concerning electric power generation and distribution equipment, industrial, domestic and other electrical equipment; prepares detailed estimates of quantities and costs of materials and labour required for manufacture and installation of electrical equipment and prepares work schedules; exercises technical supervision and control, and gives technical guidance to workers engaged in manufacture, installation, repair and maintenance of electrical equipment; inspects and tests completed work to ensure compliance with specifications and safety standards; inspects and regulates functioning of installed electrical plant employed for power generation, manufacturing process, or other purposes; applies knowledge of electrical engineering theory and practices to recognise and solve problems arising.

0-34.10 Electronics Engineering Technician (General).

Performs technical tasks, normally under direction and supervision of electronics engineer, contributory to design, development, construction, installation, maintenance and repair of electronic devices and equipment:

performs tasks similar to those of *Electrical engineering technician (general) (0-34.05)* but specialises in electronic devices and equipment such as radio, television and radar equipment, telecommunications installations and automatic control and guidance systems.

0-34.20 Electrical Engineering Technician (High Voltage).

Performs technical tasks, normally under direction and supervision of electrical engineer, contributory to design, development, construction, utilisation, maintenance and repair of high-voltage electrical systems and equipment:

performs tasks similar to those of *Electrical engineering technician (general) (0-34.05)* but specialises in high-voltage electrical systems and equipment such as that used in the generation and distribution of electricity.

0-34.30 Telecommunications Technician.

Performs technical tasks, normally under direction and supervision of telecommunications engineer, contributory to design, development, construction, installation, operation, maintenance and repair of telecommunications systems and equipment:

performs tasks similar to those of *Electronics engineering technician (general) (0-34.10)* but specialises in telephone and telegraph systems based on line or radio communication.

0-34.90 Other Electrical and Electronics Engineering Technicians.

This group includes electrical and electronic engineering technicians not elsewhere classified, for example those who perform tasks similar to those of *Electrical engineering technician (general) (0-34.05)* or *Electronics engineering technician (general) (0-34.10)* but specialise in technical tasks contributory to the design, development, construction, maintenance and repair of particular apparatus or products such as electronic calculating and data-processing equipment; radar, radio or television equipment; signalling and automatic control systems; electric traction equipment; electric motors; domestic electrical appliances; or other electrical or electronic apparatus (excluding high-voltage equipment and telecommunications systems).

0-35 Mechanical Engineering Technicians

Workers in this unit group perform technical tasks, normally under the direction and supervision of mechanical engineers, contributory to the design, development, manufacture, construction, installation, maintenance and repair of mechanically functioning plant and equipment.

Their functions include:

assisting in research and development work concerning machine tools, engines, vehicles, aeroplanes, heating, ventilating and refrigerating installations and other mechanically functioning plant and equipment;

preparing detailed estimates of quantities and costs of materials and labour required for manufacture and installation;

assisting with technical supervision of manufacture, installation, maintenance and repair of mechanical plant and equipment;

applying knowledge of mechanical engineering theory and practices to recognise and solve problems arising in the course of their work.

0-35.10 Mechanical Engineering Technician (General).

Performs technical tasks, normally under direction and supervision of mechanical engineer, contributory to design, development, manufacture, construction, installation, efficient operation, maintenance and repair of mechanically functioning plant and equipment:

sets up and carries out experiments, makes tests, takes readings, performs calculations, adjusts instruments, records observations and otherwise assists in research and development work concerning machine tools, engines, vehicles, heating, ventilating and refrigerating plant, plant and equipment for the release, control and utilisation of nuclear energy, and other mechanically funtioning plant and equipment; prepares detailed estimates of quantities and costs of materials and labour required for manufacture and installation, and prepares work schedules; exercises technical supervision and control and gives technical guidance to workers engaged in manufacture, installation, repair and maintenance of mechanically functioning plant and equipment; inspects and tests completed work to ensure compliance with specifications and safety standards; inspects and regulates functioning of installed mechanical plant and equipment employed for manufacturing processes and other purposes; applies knowledge of mechanical engineering theory and practices to recognise and solve problems arising.

0-35.20 Mechanical Engineering Technician (Motors and Engines).

Performs technical tasks, normally under direction and supervision of mechanical engineer, contributory to design, development, manufacture, installation, maintenance and repair of steam, internal combustion and non-electric motors and engines:

performs tasks similar to those of *Mechanical engineering technician (general) (0-35.10)* but specialises in non-electric motors and engines as used for propulsion of vehicles or driving industrial and other machinery.

May specialise in particular type of engine, such as diesel or petrol engines, or particular type of application, as in aircraft, automobiles or ships.

Technicians specialising in electric motors are classified in 0-34.90.

0-35.30 Aeronautical Engineering Technician.

Performs technical tasks, normally under direction and supervision of aeronautical engineer, contributory to design, development, construction, maintenance and repair of aircraft:

performs tasks similar to those of *Mechanical engineering technician (general) (0-35.10)* but specialises in airframes, undercarriages, braking systems and other mechanical equipment for aircraft.

May specialise in particular type of aircraft, such as passenger, cargo or military aircraft or helicopters.

0-35.40 Automotive Engineering Technician.

Performs technical tasks, normally under direction and supervision of automotive engineer, contributory to design, development and manufacture of road vehicles:

performs tasks similar to those of *Mechanical engineering technician (general) (0-35.10)* but specialises in bodies, suspension systems, brakes and other mechanical components for road vehicles.

May specialise in particular type of vehicle or component.

0-35.50 Heating, Ventilation and Refrigeration Engineering Technician.

Performs technical tasks, normally under direction and supervision of heating, ventilation, and refrigeration engineer, contributory to design, development, manufacture, installation, maintenance and repair of systems and equipment for heating, ventilation and refrigeration:

performs tasks similar to those of *Mechanical engineering technician (general) (0-35.10)* but specialises in systems and equipment for heating and air-conditioning industrial, commercial, residential and public buildings, making ice and cooling storage rooms.

0-35.90 Other Mechanical Engineering Technicians.

This group includes mechanical engineering technicians not elsewhere classified, for example those who perform tasks similar to those of *Mechanical engineering technician (general) (0-35.10)* but specialise in technical tasks contributory to the design, production or maintenance of apparatus or products such as plant and equipment for the release, control and utilisation of nuclear energy; ships' hulls and superstructures; precision instruments; cameras and projectors; typewriters, desk calculators, cash registers and ticket machines; duplicating and copying machines; mechanically functioning medical equipment; or special space vehicles and mechanical equipment for space exploration and travel.

0-36 Chemical Engineering Technicians

Workers in this unit group perform technical tasks, normally under the direction and supervision of chemical engineers, contributory to development of industrial chemical processes and design, construction, operation, maintenance and repair of chemical plant.

Their functions include:

assisting in research to develop new or improved processes and manufacturing plant for the chemical or physical transformation of substances on a commercial scale;

preparing detailed estimates of quantities and costs of materials and labour required for manufacture and installation of plant;

assisting with technical supervision of construction, installation, operation, maintenance and repair of plant;

applying knowledge of chemical engineering theory and practices to recognise and solve problems arising in the course of their work.

0-36.10 Chemical Engineering Technician (General).

Performs technical tasks, normally under direction and supervision of chemical engineer, contributory to development of processes for the chemical or physical transformation of substances on a commercial scale and to design, construction, operation, maintenance and repair of chemical plant:

sets up and carries out experiments, makes tests, takes readings, performs calculations, adjusts instruments, records observations and otherwise assists in research to develop new or improved processes and manufacturing plant; prepares detailed estimates of quantities and costs of materials and labour required for construction and installation of plant and prepares work schedules; inspects and regulates functioning of installed chemical processing plant; exercises technical supervision and control of chemical processing operations; gives technical guidance to workers engaged in constructing, installing, maintaining and repairing chemical processing plant; inspects and tests completed work to ensure compliance with specifications and safety standards; applies knowledge of chemical engineering theory and practices to recognise and solve problems arising.

0-36.20 Chemical Engineering Technician (Petroleum).

Performs technical tasks, normally under direction and supervision of chemical engineer (petroleum), contributory to development of processes for refining crude oil and to design, construction, operation, maintenance and repair of refining plant:

performs tasks similar to those of *Chemical engineering technician (general) (0-36.10)* but specialises in refining of crude oil and production of derivatives such as petrol and paraffin fuels and lubricating oils and greases.

0-36.90 Other Chemical Engineering Technicians.

This group includes chemical engineering technicians not elsewhere classified, for example those who perform tasks similar to those of *Chemical engineering technician (general) (0-36-10)* but specialise in technical tasks contributory to development and efficient utilisation of fuels or to design, construction, operation, maintenance and repair of plant for the chemical and physical transformation of matter for the manufacture of a particular type of commodity such as antibiotics, plastics, explosives, rubber or pigments, or of plant for production and distribution of fuel gas for industrial, domestic and other uses.

0-37 Metallurgical Technicians

Workers in this unit group perform technical tasks, normally under direction and supervision of metallurgists, contributory to development and control of processes for extraction of metals from their ores and metal refining, research into properties of metals, development of new alloys, and technical supervision of metal and alloy manufacture and processing.

0-37.20 Extractive Metallurgy Technician.

Performs technical tasks, normally under direction and supervision of extractive metallurgist, contributory to development and control of processes for the extraction of metals from their ores:

sets up and carries out experiments, makes tests and analyses, takes readings, performs calculations, adjusts instruments, records observations and otherwise assists in research to develop new or improved ore reduction and metal-refining processes; assists in control of ore reduction and metal-refining processes by regulating temperatures, mixtures and other processing conditions; applies knowledge of theory and practices of extractive metallurgy to recognise and solve problems arising.

May specialise in ferrous or non-ferrous metals or in a particular metal.

0-37.30 Physical Metallurgy Technician.

Performs technical tasks, normally under direction and supervision of physical metallurgist, contributory to research into properties of metals and alloys, development of new alloys and technical supervision of metal and alloy manufacture and processing:

sets up and carries out experiments, makes tests and analyses, takes readings, performs calculations, adjusts instruments, records observations and otherwise assists in research into physical characteristics and engineering properties of metals and alloys and in development of new alloys and improved processes for obtaining metals with required characteristics; assists in technical supervision of metal-making and treating processes such as melting, alloying, hot- and cold-rolling, casting, forging, drawing, heat-treating, plating; tests metal and alloy samples, semi-finished and finished articles for impurities, fractures and other defects and to ensure compliance with specifications; applies knowledge of theory and practices of physical metallurgy to recognise and solve problems arising.

May specialise in ferrous or non-ferrous metals or in a particular application of physical metallurgy such as casting.

0-37.90 Other Metallurgical Technicians.

This group includes metallurgical technicians not elsewhere classified, for example those who perform technical tasks similar to those of *Extractive* and *Physical metallurgy technicians (0-37.20* and *0-37.30)* to assist metallurgists specialising in radioactive materials.

0-38 Mining Technicians

Workers in this unit group perform technical tasks, normally under the direction and supervision of mining engineers, contributory to the extraction from the earth and preparation for distribution or processing of minerals such as coal, iron, copper, gold, platinum, silver, petroleum, gas, stone, clay, salt and diamonds.

Their functions include:

assisting in geological and topographical surveys;

assisting in planning and supervising construction of mine shafts, tunnels and surface developments;

assisting in technical supervision of mining and quarrying operations, preparation of minerals for distribution, well-drilling operations and initial treatment of crude oil and natural gas;

assisting in research to develop improved methods of extraction;

applying knowledge of theory and practices of mining and well-drilling to recognise and solve problems arising in the course of their work.

0-38.10 Mining Technician (General).

Performs technical tasks, normally under direction and supervision of mining engineer, contributory to the extraction of metallic and solid non-metallic minerals from the earth and their preparation for distribution or processing:

sets up and adjusts instruments, takes readings and measurements, performs calculations, records data and otherwise assists in geological and topographical surveys to ascertain location and nature of mineral deposits; prepares drawings, estimates and work schedules, and otherwise assists in planning layout and supervising construction of underground shafts, tunnels and surface developments; inspects and tests completed mine development work to ensure compliance with specifications and safety standards; assists in technical supervision of mining or quarrying operations and preparation of extracted minerals for distribution or processing; assists in research to develop new and improved methods of extraction; applies knowledge of mining theory and practices to solve problems arising.

0-38.20 Petroleum and Natural Gas Extraction Technician.

Performs technical tasks, normally under direction and supervision of petroleum and natural gas engineer, contributory to the extraction, storage and transportation of petroleum and natural gas:

prepares drawings, estimates and work schedules, and otherwise assists in planning drilling operations; gives technical guidance to drilling teams and other workers; tests boreholes to determine pressures, temperatures, strata encountered and other factors; assists in bringing wells into production by controlling flow of oil or gas and treating oil to remove sediment and water; assists in technical supervision of operations of producing wells and associated storage tanks and pipe transport system and keeps production and other records; assists in research to develop new and improved methods of extraction; applies knowledge of theory and practices of petroleum and natural gas extraction to recognise and solve problems arising.

May assist in geological and geographical surveys to ascertain location and size of petroleum or natural gas deposits.

0-38.90 Other Mining Technicians.

This group includes mining technicians not elsewhere classified, for example those who perform tasks similar to those of *Mining technician (general) (0-38.10)* but specialise in technical tasks contributory to the extraction from mines and quarries of a particular solid mineral such as coal, stone, clay, salt, gravel or diamonds; or to extraction of subsurface water or sulphur and other solid minerals by drilling boreholes; or to extraction of tin, gold, diamonds or other solid minerals from alluvial deposits by sluicing and dredging.

0-39 Engineering Technicians Not Elsewhere Classified

Workers in this unit group perform technical functions in engineering, normally under the direction and supervision of engineers, and are not elsewhere classified.

Their functions include:

assisting industrial engineers in connection with production engineering matters, time and motion studies, or safety measures and procedures;

assisting manufacturing technologists specialising in ceramics and glass, food and drink, textiles, paper, leather or wood products, in connection with the development of plant and processes and technical supervision of processing operations;

assisting agricultural engineers;

assisting traffic planners;

performing other technical tasks in engineering.

0-39.20 Production Engineering Technician.

Performs technical tasks, normally under the direction of production methods engineer, to determine for particular products suitable sequences and timings for production operations:

examines working drawings, manufacturing specifications and prototypes of proposed products and identifies fabrication, assembly and other operations required to produce finished article; determines appropriate sequences and timings of operations, taking account of production methods, materials and equipment to be used; prepares detailed schedules of sequences and timings of production operations.

0-39.30 Time and Motion Study Technician.

Performs time and motion studies under direction and supervision of time and motion study engineer:

observes and measures worker performance and calculates and records such factors as time taken, motions involved, methods employed and accustomed work speeds; prepares charts, graphs and diagrams to illustrate workflow, routing, floor layouts, material handling, machine utilisation and other information; assists in identification of unnecessary effort, calculation of optimum time and production standards and preparation of recommendations for more efficient and economic use of personnel and facilities.

May assist *Time and motion study engineer (0-28.30)* in implementation of recommendations for changes in work procedures and job tasks.

0-39.90 Other Engineering Technicians.

This group includes engineering technicians not elsewhere classified, for example those who specialise in performing technical tasks contributory to technological development of processes and plant, or technical supervision of processing operations, relating to the manufacture of bricks, pottery and glassware; of foods and beverages; textiles; paper; leather or wood products; those assisting safety engineers, agricultural engineers, or traffic planners; and those performing other technical tasks in engineering not performed by workers classified elsewhere.

0-4 AIRCRAFT AND SHIPS' OFFICERS

Workers in this minor group pilot and navigate aircraft, give instruction in flying aircraft, inspect, adjust and regulate during flight the mechanical equipment of aircraft, command and navigate ships and hovercraft, direct and supervise engine-room activities on board ship, and direct marine services and supplies or mechanical overhauls, replacements and repairs for vessels of a shipping line in port. They are classified in the unit groups listed below:

0-41 Aircraft Pilots, Navigators and Flight Engineers.
0-42 Ships' Deck Officers and Pilots.
0-43 Ships' Engineers.

0-41 Aircraft Pilots, Navigators and Flight Engineers

Workers in this unit group fly aircraft, direct the course of aircraft in flight, inspect, adjust and regulate during flight the mechanical equipment of aircraft and give flying instruction.

Their functions include:

flying aircraft to transport passengers, mail or freight;

flying aircraft for testing or delivery, aerial spraying, aerial surveys or photography, and exhibitions of flying skill;

navigating aircraft in flight;

inspecting mechanical and other equipment of aircraft, making adjustments and minor repairs, monitoring control panel during flight and regulating engine speed according to pilot's instructions;

teaching trainee pilots to fly aircraft.

0-41.20 Air Transport Pilot.

Flies aircraft transporting passengers, mail or freight:

carries out pre-flight check, verifying instruments, controls, load, fuel supply and other items; operates controls to manœuvre aircraft on land and in the air and to take off and land; observes gauges, meters and other cockpit instruments during flight to aid in control of aircraft and to detect irregularities; uses navigational aids to direct the course of aircraft in flight; observes air traffic control and safety instructions; keeps flight log.

May be designated according to type and weight of aircraft he is authorised to fly and serve as commander or co-pilot.

0-41.30 Aircraft Pilot (except Transport).

Pilots aircraft for purposes other than passenger, mail or freight transportation, such as for testing or delivering aircraft, spraying insecticides and fungicides for pest control, aerial surveys, aerial photography, and exhibitions of flying skill:

performs tasks similar to those of *Air transport pilot (0-41.20)* but specialises in piloting aircraft for particular purposes other than transportation of passengers, mail or freight; pilots aircraft according to instructions having regard to purpose of flight, following predetermined flight plan, or performing aerial manœuvres and tests; flies at low altitudes when required.

0-41.40 Flight Navigator.

Directs course of aircraft in flight according to predetermined flight plan or as directed by pilot-in-command:

locates position and directs flight by use of radar, radio beams, charts, celestial observations, dead reckoning or visual observation; recommends deviations from course required by weather conditions; keeps log of flight.

0-41.50 Flight Engineer.

Makes pre-flight, in-flight and post-flight inspections, carries out adjustments and minor repairs to ensure safe and efficient operation of aircraft and monitors control panel during flight:

makes pre-flight and post-flight inspection of power plant, other equipment and fuselage; observes gauges, meters and other aircraft instruments during flight to detect technical irregularities; monitors fuel gauges and consumption and engine performance, regulating engine speed according to pilot's instructions; makes minor adjustments and repairs and brings emergency equipment into operation if necessary; keeps record of engine performance and defects or difficulties occurring during flight and keeps pilot-in-command informed.

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0-41.60 Flying Instructor.

Teaches trainee pilots to operate the controls of an aircraft and instructs them in aircraft piloting techniques and procedures:

explains use and operation of aircraft components, such as rudder, flaps, ailerons, compass, altimeter and radio; accompanies trainees on training flights and demonstrates techniques for controlling aircraft during taxiing, take-off, turns, stalls and landing; explains airport regulations and procedures for obtaining permission to take off and land.

May instruct qualified pilots in the operation of types of aircraft or new equipment with which they are unfamiliar. May give proficiency tests on termination of course.

0-42 Ships' Deck Officers and Pilots

Workers in this unit group command and navigate ships and hovercraft and direct marine services on shore for shipping company vessels arriving in port.

Their functions include:

taking complete charge of seagoing or inland waterway vessels;

planning, supervising and co-ordinating deck and bridge-watch activities on vessels;

navigating vessels into and out of ports and through channels, straits and other waters where special knowledge and skill are required;

directing or arranging supply of ships' stores and equipment, recruitment of crews and provision of other services (except engineering) for company vessels arriving in port.

0-42.15 Ship's Master (Sea).

Takes complete charge of seagoing ship and directs, co-ordinates and supervises shipboard activities:

directs manœuvres of ship at sailing and berthing; controls speed and directs course of vessel at sea using navigational aids; organises, co-ordinates and supervises work of officers and ratings; ensures safe loading and discharge of cargo, and maintenance of hull superstructure and equipment; ensures observance of safety regulations and procedures by crew and passengers and directs emergency operations if vessel is in distress; represents vessel owners in commercial transactions and deals with other ship's business; maintains log (daily record) of events during voyage.

May be in charge of special vessel such as oceanographic research ship. May be designated according to waters or vessel tonnage which he is certificated to navigate, for example *Master, coastal waters.*

0-42.20 Ship's Master (Inland Waterways).

Takes complete charge of vessel confined to inland waterways and directs, co-ordinates and supervises activities on board:

directs manœuvres of ship at sailing and berthing; controls speed and directs course of vessel by use of charts, compass, radar and other navigational aids, including navigational markers; organises, co-ordinates and supervises work of officers and ratings; ensures observance of safety regulations and procedures by crew and passengers and directs emergency operations if vessel is in distress; represents vessel owners in commercial transactions and deals with other ship's business; maintains log (daily record) of events during voyage.

May be designated according to waters or vessel tonnage for which he is certificated to navigate.

Boatman is classified in 9.81.90.

0-42.30 Ship's Navigating Officer.

Plans, supervises and co-ordinates deck and bridge-watch activities on seagoing or inland waterways vessel:

assists master in navigation of vessel in accordance with his instructions, determines position and course of vessel by use of charts, compasses, radar and other navigational aids; keeps watch; communicates with other ships or shore by signal lights, signal flags or radio telephone; organises and supervises deck crew, including crew members maintaining and cleaning hull, superstructure, cargo compartments and deck equipment; supervises loading and unloading of cargo.

May be designated *First mate*, *Second mate* or *Third mate*. A first mate is next in command to the ship's captain and may take charge in an emergency. When there is more than one mate on ship, above duties may be distributed among them.

0-42.40 Ship Pilot.

Navigates vessels into and out of ports, in rivers, channels, straits and other waters where special knowledge and skill are required:

directs course and speed of ship using special knowledge of local winds, weather, tides, currents, shallows, reefs and other conditions and navigational aids such as lighthouses and buoys; instructs seaman at helm to steer course accordingly.

May be designated according to class or tonnage of vessels he is certificated to pilot.

0-42.50 Marine Superintendent (Deck).

Directs or arranges on-shore services such as supply of ships' stores and equipment, ship inspections and overhauls, crew replacements and navigational information for shipping company vessels arriving in port:

orders ship's stores (other than food), deck and navigation equipment and fuel, for delivery according to master's requirements; arranges for inspections, tests and overhauls as required by regulations or company practices; arranges recruitment of deck officers and ratings; advises and instructs ship's master on navigational matters such as changes of charts, soundings, buoyed channels and harbour approaches.

May, if certificated to command ship, be designated *Port captain.*

Marine superintendent (technical) is classified in 0-43.30.

0-42.90 Other Ships' Deck Officers and Pilots.

This group includes ships' deck officers and pilots not elsewhere classified, for example those in charge of seagoing yachts and hovercraft.

0-43 Ships' Engineers

Workers in this unit group plan, co-ordinate, direct and participate in the operation, maintenance and repair of mechanical and related equipment on board ship, or direct from shore station mechanical overhauls, replacements and repairs in port for vessels of a shipping line.

Their functions include:

taking complete charge of ship's engine-room department, standing watch in engine or boiler room and supervising engine-room department personnel engaged in operation, maintenance and repair of shipboard machinery and equipment;

directing from shore station the maintenance and replacement programme and repair work in port for machinery and equipment of vessels of a shipping line.

0-43.15 Ship's Chief Engineer.

Plans, co-ordinates and directs engine-room department aboard ship and supervises subordinate marine engineer officers and engine-room ratings:

takes complete charge of the operation, maintenance and repair of all mechanical and electrical machinery and equipment on board ship including propulsion engines, boilers, auxiliary and deck machinery, refrigeration and sanitary equipment; directs and supervises personnel of engine-room department; requisitions fuel and engine department stores; maintains record of operations of engineering department.

May stand engine-room watch and perform some other duties of subordinate *Marine engineer officer (0-43.20)*.

0-43.20 Marine Engineer Officer.

Controls, and participates in, the operation, maintenance and repair of engines, electrical motors, boilers, pumps, compressors, heat exchangers, and other machinery and equipment on board ship under the general direction of chief engineer:

stands watch and directs ratings in engine or boiler room, supervises operation of mechanical equipment and changes in engine speed in response to signals from bridge; ensures engines are properly lubricated and, on steam-propelled ships, that boilers, water and steam pressure are maintained at required levels; inspects ship's machinery and equipment and supervises work of engine-room ratings on maintenance and repair; supervises loading and tank transfers of fuel and water and reports on consumption; keeps log of performance of machinery.

May do electrical work in absence of *Ship's electrician (8-55.35)*. May be designated *First engineer*, *Second engineer* or *Third engineer*. When there is more than one engineer on ship, above duties may be distributed among them.

0-43.30 Marine Superintendent (Technical).

Directs from shore station the maintenance programmes for machinery and equipment on board company's ships, directs or authorises repairs in port and directs replacement programme for shipboard machinery:

advises shipping company on engineering matters pertaining to its ships and determines maintenance and replacement programmes for shipboard machinery and equipment; keeps records of mechanical performance of ships; inspects mechanical and electrical equipment of ships arriving at port; determines nature and extent of repairs or desirable alterations or replacements and estimates costs; formulates specifications for repairs, alterations or replacements and supervises drafting of plans; examines and approves tenders, inspects materials to be used in repairs and examines completed work of contractors, or delegates authority to subordinates.

May supervise all engineers on company's ships and consult with makers of engines and other equipment about technical improvements.

0-5 LIFE SCIENTISTS AND RELATED TECHNICIANS

Workers in this minor group conduct pure and applied research and develop practical applications of scientific knowledge, or perform related auxiliary technical tasks, in the field of the life sciences. They normally specialise in a particular branch of life sciences, such as biology, botany, zoology, anatomy, biochemistry, physiology, pharmacology, pathology, animal genetics and ecology, agronomy, silviculture, horticulture or pisciculture. They may specialise in developing practical applications in medical, industrial, agricultural and other particular fields. They are classified in the unit groups listed below:

0-51 Biologists, Zoologists and Related Scientists.
0-52 Bacteriologists, Pharmacologists and Related Scientists.
0-53 Agronomists and Related Scientists.
0-54 Life Sciences Technicians.

0-51 Biologists, Zoologists and Related Scientists

Workers in this unit group conduct pure research into all forms of life to increase scientific knowledge and applied research to develop practical applications in fields such as medicine, agriculture and forestry.

Their functions include:

planning and conducting field and laboratory studies of the origin, development, functions, structure, distribution, environment, interrelationships and other aspects of life-forms;

co-ordinating, analysing and evaluating data obtained and preparing reports of findings and conclusions for use in such fields as medicine, agriculture, forestry and pharmaceuticals manufacture.

0-51.10 Biologist (General).

Conducts research into all forms of life to increase scientific knowledge and develops practical applications in fields such as medicine and agriculture:

plans field and laboratory studies of origin, development, functions, structure, distribution, environment, interrelationships and other aspects of life-forms; observes characteristics and behaviour of life-forms in their natural environment; identifies, classifies and preserves specimens and prepares collections to assist studies of development, diseases and other subjects; studies and experiments with biological specimens in laboratory, employing such techniques as dissection, microscopy, chemical-staining and photography; co-ordinates, analyses and evaluates data obtained, employing statistical techniques as necessary, and prepares reports of findings and conclusions for use in such fields as medicine, agriculture and pharmaceuticals manufacture or as an aid to further research.

May raise plants, animals and other life-forms in laboratory for experimental purposes.

0-51.20 Botanist.

Conducts research into all forms of plant life to increase scientific knowledge and develop practical applications in fields such as agriculture and forestry:

performs tasks similar to those of *Biologist (general) (0-51.10)* but specialises in plant life.

May specialise in a particular branch of botany, such as plant ecology, plant taxonomy or mycology, and be designated accordingly.

0-51.30 Zoologist.

Conducts research into all forms of animal life to increase scientific knowledge and develop practical applications in fields such as agriculture and medicine:

performs tasks similar to those of *Biologist (general) (0-51.10)* but specialises in animal life.

May specialise in a particular branch of zoology, such as entomology, ornithology or animal ecology, and be designated accordingly.

0-51.90 Other Biologists, Zoologists and Related Scientists.

This group includes biologists, zoologists and related scientists not elsewhere classified, for example those who specialise in marine and freshwater life.

0-52 Bacteriologists, Pharmacologists and Related Scientists

Workers in this unit group study the structure, composition, and life processes of humans, animals and micro-organisms and apply their findings to such purposes as prevention of disease in humans and animals, promotion of health and physical fitness and development of animals for economic exploitation.

Their functions include:

conducting research into the form, structure and other anatomical characteristics of humans and animals, the chemical composition and processes of living organisms, the biological functions and activities of the human organism under normal and abnormal conditions, the nature and characteristics of bacteria and their action on living organisms and dead organic matter, the nature, causes and development of human and animal diseases and parasites, effects of drugs on organs, tissues and life processes of humans and animals, and systems of selective breeding of animals and advanced methods of animal husbandry;

developing practical applications of such scientific knowledge in medical, public health, agricultural, industrial and other fields.

0-52.20 Anatomist.

Conducts research into the form, structure and other anatomical characteristics of humans and animals to increase scientific knowledge and develop practical applications in medical and related fields:

examines specimens in laboratory, employing such techniques as dissection, microscopy and photography to identify and compare nature and characteristics of body organs, tissues and cells; carries out experiments and investigates anatomical characteristics and reactions such as ability to regenerate destroyed or damaged parts of the body, and possibility of transplanting organs and tissues from one living body to another.

0-52.30 Biochemist.

Conducts research into chemical composition and processes of living organisms to increase scientific knowledge and develop industrial, medical and other practical applications:

performs experiments, tests and analyses to determine chemical composition of living organisms, chemistry of their vital processes such as breathing, digestion, growth and aging, chemical action of foods, drugs, serums, hormones and other substances on their tissues and vital processes, chemical aspects of formation of antibodies in the blood, and other biochemical phenomena; develops new or improved methods for preservation of food and drink, preparation of serums, vaccines, hormones and pituitary and thyroid extracts, water purification and sewage treatment; and develops other practical applications of biochemistry in industry, medicine, public health and other fields.

0-52.40 Physiologist.

Conducts research into biological functions and activities of human organism under normal and abnormal conditions to increase scientific knowledge and develop practical applications in medical and related fields:

studies functions and working of the brain, nervous system, sensory organs, glands, respiratory and blood circulation systems and other life processes of the human organism; investigates reactions of life processes and functions to changes in altitude, noise levels, motion, light intensity, temperature, humidity and other environmental factors; applies scientific knowledge to problems of physical fitness, nutrition, human endurance and similar matters.

May specialise in particular area of human physiology such as study of glands and their secretions, or of the brain, nervous system and sensory organs, and be designated accordingly.

0-52.50 Bacteriologist.

Conducts research into nature and characteristics of bacteria and other micro-organisms to increase scientific knowledge and develop industrial, medical and other practical applications:

performs experiments, tests and analyses to isolate, identify and make cultures of bacteria and other micro-organisms, determine conditions that favour and inhibit their growth and reproduction, ascertain their action on living tissues of plants, animals and micro-organisms and on dead organic matter and determine chemical composition of acids, alcohols, enzymes and other substances produced thereby; develops new or improved methods for processing, preservation and flavouring of dairy products and other foods, for controlling bacteria harmful to fish, for control and utilisation of bacteria in soil, for prevention and treatment of diseases by antibacterial serums and vaccines, and other practical applications of bacteriology in industry, agriculture, medicine and other fields.

May specialise in a particular branch of bacteriology and be designated accordingly.

0-52.60 Medical Pathologist.

Conducts research into nature, causes and development of human diseases and disorders:

supervises or conducts tests of specimens of body fluids and tissues of patients and evaluates results to determine nature, stage of development and possible sources of infection; studies effects of selected drugs on diseased organisms to find effective methods of treatment for specific patients and prepares reports for medical doctors concerned; performs autopsies, determining such factors as cause of death, nature and extent of disease and effectiveness of treatment received.

May specialise in a particular type of pathology, such as forensic pathology, and be designated accordingly.

0-52.65 Veterinary Pathologist.

Conducts research into nature, causes and development of animal diseases and disorders:

performs tasks similar to those of *Medical pathologist (0-52.60)* but specialises in animal diseases and disorders.

0-52.70 Pharmacologist.

Conducts research into effects of drugs and other substances on organs, tissues and life processes of humans and animals and develops new and improved medicinal drugs:

performs experiments, tests and analyses to determine effects of drugs and other substances on metabolism, cell growth and reproduction, circulation, respiration, digestion and other life processes; collaborates with medical doctors and pharmacists in the testing of drugs on human beings and standardises drug dosages for treatment of illnesses by correlating results of laboratory tests on animals with results of clinical experiments; collaborates with industrial pharmacists in development of drugs and standardisation of production methods and drug potency; analyses substances which may be taken into the body, such as food preservatives and colouring matter, toxic gases and detergents, to determine their effect on human tissues, organs and life processes.

May specialise in particular branch of pharmacology, such as effects of drugs on particular organs of the body, the development of drugs to treat particular diseases or the detection and identification of poisonous substances.

0-52.80 Animal Scientist.

Conducts research into animal genetics, advanced animal husbandry methods and related matters and applies scientific knowledge to develop improved strains, improved methods of raising animals and higher yields of animal products:

controls breeding to produce offspring with characteristics required such as improved strength, disease resistance, rate of maturity, fertility and size; experiments to ascertain feed, housing, sanitation and other requirements for production of meat or other animal products of desired quality and for maintenance of health and strength of animals; develops improved methods of controlling animal parasites and diseases, slaughtering for meat and preparation and storage of animal products.

May specialise in particular type of animal such as beef cattle, dairy cattle or poultry, or in particular aspect of animal science such as breeding or nutrition.

0-52.90 Other Bacteriologists, Pharmacologists and Related Scientists.

This group includes bacteriologists, pharmacologists and related scientists not elsewhere classified, for example those conducting research in the field of biophysics, relating to such problems as dynamics of seeing and hearing, transmission of electrical impulses along nerves and muscles, effects of light and other radiation on body cells, and developing practical applications for medical or other purposes.

0-53 Agronomists and Related Scientists

Workers in this unit group conduct research into field-crop growing, horticulture, forestry and soils and develop improved methods of propagation, cultivation, harvesting, pest control and related farming activities.

Their functions include:

conducting research into field and horticultural crops and forestry to develop new and improved methods giving higher yields and better quality;

planning and directing forest planting, care and exploitation of forest stands;

studying the characteristics, use capabilities and productivity of soils and applying findings to development of improved agricultural, horticultural and forestry practices;

advising farmers on farming methods and problems.

0-53.20 Agronomist.

Conducts research into field crops and grasses and develops new and improved production methods:

performs experiments to improve seed germination, plant growth, adaptability of crops to different soils or climates, resistance to diseases and insect pests, yields, quality of harvest, and other characteristics of field crops; studies crop planting, cultivating, harvesting and harvest storage methods and effects of rotation, drainage, irrigation and climatic conditions; develops methods for control of weeds, plant diseases and insect pests; advises farmers on selection of crops and methods of production.

May specialise in a particular aspect of field crop growing such as plant breeding or pest control, or in a particular field crop.

0-53.30 Horticulturist.

Conducts research into horticultural crops and develops new and improved production methods:

performs experiments to improve plant growth, resistance to diseases and insect pests, adaptability to different soils or climates, yields, quality of harvest, and other characteristics of horticultural plants such as fruit and nut trees, vegetables, flowers and shrubs; studies planting, cultivating and harvesting methods and effects of rotation, drainage, irrigation and climatic conditions; develops improved methods of storage, transportation and processing of horticultural products; advises farmers on selection of horticultural crops and methods of production.

May specialise in a particular horticultural product such as fruit.

0-53.40 Silviculturist.

Conducts research into, and develops methods of, tree propagation and culture and plans and directs afforestation, care and exploitation of forest stands:

studies rates of tree growth for different species cultivated under various conditions, tree diseases, effects of thinning on forest yields, effects of fire and animal grazing on growth, seed production and selection, germination of different species and other aspects of tree propagation and culture; plans and directs tree nurseries, afforestation and development of forest stands by encouraging growth through systematic thinning, pruning, removal of diseased trees and other methods; plans tree-felling to give maximum continuous yield; develops techniques for measurement and identification of trees.

0-53.50 Soil Scientist.

Conducts research into characteristics, use capabilities and productivity of soils and applies findings to development of improved agricultural, horticultural and forestry practices:

studies origins, composition and distribution of soils and classifies them according to standard types; investigates responses of soil types to tillage, fertilisation, crop-rotation and other farming practices, and studies effects of alternative practices on long-term productivity of soils; analyses soils to determine content of nitrogen, phosphorus, iron and other plant-food elements, experiments to determine best soil types for different plants, and develops methods for altering soil characteristics by changing content of plant-food elements, bacteria or other constituents; plans and co-ordinates soil erosion control, moisture conservation and other soil management practices; advises on use, development and conservation of arable land.

May advise on special soil problems such as stabilisation and drainage of soils used as foundations for building and civil engineering projects.

0-53.60 Farming Adviser.

Advises farmers on farming methods and problems:

studies publications, attends demonstrations and otherwise keeps abreast of advances in farming techniques; examines methods currently employed on farms in his area and advises farmers on ways of raising quality of output, increasing yield and on measures to increase efficiency of operations and conserve farm assets; visits farms to investigate problems reported, such as soil erosion and pest infestation, and advises on action to be taken; delivers lectures, writes and distributes articles and organises demonstrations to promote adoption of efficient farming practices and techniques.

0-53.90 Other Agronomists and Related Scientists.

This group includes agronomists and related scientists not elsewhere classified, for example those who investigate conditions and problems, make recommendations and develop improved methods relating to conservation of wild life reserves or economic exploitation of grazing lands.

0-54 Life Sciences Technicians

Workers in this unit group perform technical tasks, normally under the direction and supervision of life scientists, contributory to research to increase scientific knowledge in the life sciences and to develop industrial, agricultural, medical and other practical applications.

Their functions include:

preparing biological, botanical, medical and similar specimens and growing cultures of micro-organisms for tests, analyses and experiments;

using laboratory instruments and other equipment to carry out, under supervision or according to instructions, tests, analyses and experiments and recording observations, results and other relevant information;

performing other technical tasks to assist life scientists in research and in development of practical applications of life sciences, including sciences of biology, botany, zoology, anatomy, biochemistry, physiology, bacteriology, pathology, pharmacology, agronomy, horticulture and silviculture.

0-54.20 Biological Technician.

Performs technical tasks, normally under direction and supervision of biological scientist, contributory to biological experiments, tests and analyses to increase scientific knowledge and develop industrial, public health, agricultural and other practical applications:

prepares specimens such as animal and plant cells, tissues, parts or organs, using such techniques as dissection, fixing and staining, and grows cultures of micro-organisms, for biological experiments, tests and analyses; sets and operates conventional and electron microscopes, X-ray and photographic apparatus and other laboratory equipment to examine, analyse and test specimens; records observations during experiments, tests and analyses and writes reports; performs other technical tasks to assist biological scientists in research and in development of practical applications of biological science.

May specialise in particular branch of biology or in industrial, agricultural or other specialised applications of the biological sciences. May keep laboratory equipment in good order and tend animals kept for experimentation.

0-54.30 Medical Science Technician.

Performs technical tasks, normally under direction and supervision of medical scientist, contributory to experiments, tests and analyses for the diagnosis, treatment and prevention of sickness and disease:

prepares specimens such as body organs, tissues, cells, fluids and excreta, using such techniques as fixing and staining, and grows cultures of micro-organisms, for tests, analyses and experiments; sets up and operates medical laboratory equipment such as microscopes, photo-electric colorimeters and haemocytometers to examine, analyse and test specimens, detect and identify infections and observe effects of various drugs on organism; records observations during tests, analyses and experiments and writes reports; prepares vaccines; performs other technical tasks to assist medical scientists in research and development of practical applications of medical science.

May specialise in a particular branch of medical science such as microbiology, haematology or chemical pathology. May keep laboratory equipment in good order and tend animals kept for experimentation.

0-54.90 Other Life Sciences Technicians.

This group includes life sciences technicians not elsewhere classified, for example those who specialise in performing technical tasks in connection with the collection, treatment, storage and distribution of semen for artificial breeding of farm animals; performing technical tasks to assist agronomists, horticulturists and silviculturists; or analysing samples of seeds for quality, purity and germination rating.

0-6/0-7 MEDICAL, DENTAL, VETERINARY AND RELATED WORKERS

Workers in this minor group diagnose, and prescribe and give medical and surgical curative and preventive treatment for, human and animal illnesses; make and dispense medicaments; provide professional and non-professional nursing services; prescribe and fit spectacles; provide special medical therapeutic services; operate X-ray equipment for medical diagnostic or therapeutic treatment purposes; and perform related tasks. They are classified in the unit groups listed below:

0-61 Medical Doctors.
0-62 Medical Assistants.
0-63 Dentists.
0-64 Dental Assistants.
0-65 Veterinarians.
0-66 Veterinary Assistants.
0-67 Pharmacists.
0-68 Pharmaceutical Assistants.
0-69 Dietitians and Public Health Nutritionists.

0-71 Professional Nurses.
0-72 Nursing Personnel Not Elsewhere Classified.
0-73 Professional Midwives.
0-74 Midwifery Personnel Not Elsewhere Classified.
0-75 Optometrists and Opticians.
0-76 Physiotherapists and Occupational Therapists.
0-77 Medical X-Ray Technicians.
0-79 Medical, Dental, Veterinary and Related Workers Not Elsewhere Classified.

0-61 Medical Doctors

Workers in this unit group apply medical knowledge to the prevention, diagnosis and treatment of human illnesses.

Their functions include:

conducting medical examinations, making diagnoses, prescribing and giving treatment for diseases, disorders and injuries of the human body, and applying preventive medicine techniques;

performing surgical operations in the treatment of injuries, diseases and disorders of the human body;

implementing public health laws and regulations for safeguarding and promoting the health of a community;

performing related tasks.

Anatomists, *Physiologists*, *Bacteriologists*, *Medical pathologists* and *Pharmacologists* are classified in unit group 0-52, *Dentists* in 0-63 and *Pharmacists* in 0-67.

0-61.05 General Physician.

Conducts medical examinations, makes diagnoses, prescribes medicines, and gives other forms of treatment for various kinds of diseases, disorders and injuries of the human body; applies preventive medicine techniques to prevent diseases and promote good health:

examines patient and makes or arranges for X-ray examinations or special tests if further information is required; considers results of examinations and tests, consults specialists or other physicians as necessary and diagnoses nature of disorder; prescribes medicines, advises patients on regimen necessary to preserve or restore health; administers drugs as required; keeps records of patients examined, their disorders and the treatment given or prescribed.

May compound medicines and drugs. May deliver infants and provide postnatal care to mother and infant. May direct hospital or other medical services.

0-61.10 General Surgeon.

Performs various kinds of surgical operations in the treatment of injuries, diseases and disorders of the human body:

reviews reports of patient's physical condition and medical history; examines patient to determine need for surgery, appropriate operational procedure and when operation should take place; gives instructions regarding the preparation of patient and instruments and other equipment required, consults with anaesthesist, if any, and performs operation; prescribes post-operative care and periodically observes patient's progress; keeps records of patients, operations performed and results.

May supervise hospital surgical services.

0-61.20 Specialised Physician.

Specialises in giving medical treatment and advice for particular types of diseases, disorders and injuries of the human body:

performs tasks similar to those of *General physician (0-61.05)* but specialises in a particular disease or disorder or in a particular branch of medicine such as dermatology, cardiology, gynaecology, laryngology, ophthalmology, psychiatry, radiology or urology.

May be designated according to nature of specialisation.

0-61.30 Specialised Surgeon.

Specialises in giving surgical treatment and advice for particular types of diseases and disorders of the human body:

performs tasks similar to those of *General surgeon (0-61.10)* but specialises in particular kinds of diseases or disorders or in a particular branch of surgery such as neuro-surgery or thoracic or plastic surgery.

May be designated according to nature of specialisation.

0-61.40 Public Health Physician.

Exercises controls and supervision to implement or enforce public health laws and regulations for safeguarding and promoting the health of a community:

directs campaigns and other public action to promote the health of the community, especially to eradicate or control infectious diseases and diseases of major economic and social importance, such as tuberculosis, venereal disease and poliomyelitis; directs inspections of hospitals and other health institutions, of foodstuffs and food processing plants, of hotels, restaurants and other public establishments, and of public facilities, to ensure conformity with prescribed standards, and recommends remedial action where necessary; directs and supervises public health inspectors and other officials concerned with public health matters; advises on measures to improve public health including action regarding sanitation, preserving the purity of water and air and controlling insects dangerous to health.

May impose quarantine on areas or persons to prevent spread of contagious diseases. May order decontamination of infected places, including private homes.

0-61.90 Other Medical Doctors.

This group includes medical doctors not elsewhere classified, for example those mainly employed in conducting medical examinations in schools, workplaces or elsewhere; those mainly employed in giving medical advice, for instance in connection with life or other insurance plans, social security funds, medical aspects of occupational risks, or otherwise.

0-62 Medical Assistants

Workers in this unit group perform, within a public health service or institution, limited diagnostic, preventive and curative medical tasks, mainly in connection with the common diseases of the region. They may work independently or under the general direction of a fully qualified physician.

Their theoretical and practical training in medicine is less than that of fully qualified physicians (classified in 0-61). In some countries the functions of medical assistants are carried out solely by physicians.

0-62.10 Medical Assistant.

Performs to a limited extent the tasks of *General physician (0-61.05)* within a public health service or institution, more particularly as regards common diseases of the region, either independently or under the general direction of a fully qualified physician:

makes medical examinations; refers patient to a physician or hospital if necessary; prescribes medicines, administers drugs and gives other forms of medical treatment for common diseases and minor injuries.

May provide obstetric services.

The workers in this group have not had the full training of *General physician (0-61.05)*.

0-63 Dentists

Workers in this unit group apply medical knowledge to the prevention, diagnosis and treatment of human dental or oral disorders.

Their functions include:

performing diagnostic, preventive and curative services for dental or oral diseases and disorders;

giving surgical, medical and other forms of treatment for particular types of dental and oral diseases and disorders;

planning and directing public action to improve oral health and to control and improve standards of dental care and treatment of oral disorders.

0-63.10 Dentist, General.

Performs diagnostic, preventive and curative services for dental or oral diseases and disorders:

examines teeth and oral cavity, using X-rays and other diagnostic tools as necessary, and prepares a plan of treatment; prepares and fills lesions produced by dental caries; replaces portions of tooth crown by inlay or artificial crown; replaces lost teeth by bridge work and dentures; provides root canal treatment; treats periopical lesions and periodontal diseases; carries out minor oral surgery including extraction of erupted and impacted teeth; corrects malposition of teeth by orthodontic procedures; performs other duties such as advising patients on oral hygiene, organising oral health services and advising on public oral health questions.

0-63.20 Specialised Dentist.

Specialises in giving surgical, medical and other forms of treatment for particular types of dental and oral diseases and disorders:

performs tasks similar to those of *Dentist (general) (0-63.10)* but specialises in a particular branch of dentistry, such as prosthodontics, periodontics, orthodontics, or pedodontics.

May be designated according to nature of specialisation.

0-63.30 Public Health Dentist.

Plans and directs public action to improve oral health and to control and improve standards of dental care and treatment of oral disorders:

promotes and exercises supervision over public clinical and laboratory services for diagnoses and treatment of oral disorders and diseases and improvement of oral health, including inspection services for schoolchildren; investigates the state of oral health of the community and advises governmental and municipal authorities on dental health problems.

0-64 Dental Assistants

Workers in this unit group perform limited diagnostic, curative and preventive dental tasks within a public dental health service (e.g. for schoolchildren), or otherwise.

Their theoretical and practical training in dentistry is less than that of *Dentists (0-63)*.

Dental prosthesis maker and repairer is classified in 8-42.50.

Dental chair-side assistants (workers who help the dentist in his consulting room at the chair-side by preparing and taking care of instruments and other dental equipment, preparing materials and looking after the welfare of patients) are classified in unit group 5-99.

0-64.20 Dental Assistant.

Carries out, but only to a limited extent, diagnostic, preventive and curative tasks in dentistry to assist dentists, or independently:

extracts teeth under local anæsthesia; prepares cavities and places fillings in both permanent and deciduous teeth; performs certain types of prosthetic work including full dentures; performs some surgical procedures including the opening and drainage of dental abscesses; performs some types of treatment of periodontal lesions and lesions of oral mucosa.

The workers in this group have not had the full training of *Dentists (0-63)*, and may be designated *Practical dentist, Unregistered dentist or Dental auxiliary.*

0-64.30 School Dental Assistant.

Performs limited diagnostic, preventive and curative duties in dentistry for pre-school and schoolchildren under the direction and control of a dentist:

carries out periodic examinations and treatment of schoolchildren; examines patients and charts dental conditions; performs prophylaxis; places fillings in both permanent and deciduous teeth; extracts teeth under local anaesthesia; makes topical application of preventive medicaments; identifies malocclusion and lesions and refers the patient to a dentist; gives special attention to teaching the principles of oral hygiene and the prevention of dental disease.

0-64.40 Dental Hygienist.

Carries out dental prophylactic treatments and instructs groups and individuals in care of teeth and mouth:

removes calcareous deposits from teeth; applies topical fluorides or other prophylactic solutions; takes intra-oral X-rays; makes primary examinations of groups such as children or factory employees to detect dental defects which require treatment by a dentist; provides individual and group instruction in oral hygiene.

0-65 Veterinarians

Workers in this unit group diagnose and give or prescribe medical or surgical treatment of diseases, injuries or other medical conditions of animals, and assist in epidemiological, radiological and other surveillance of animal health.

Their functions include:

diagnosing diseases or injuries of animals;

administering surgical or medical treatment;

testing dairy and other herds and inoculating animals against disease;

advising on care and breeding of animals;

performing other functions requiring a scientific knowledge of veterinary medicine such as examining animals for soundness, veterinarian legal work, food hygiene, control of communicable animal diseases and comparative medicine.

Veterinary pathologist is classified in 0-52.65.

0-65.10 Veterinarian (General).

Diagnoses and gives or prescribes medical and surgical treatment of diseases, injuries or other medical conditions of animals and deals with other aspects of animal health:

diagnoses disease or injury and gives animals surgical or medical treatment; tests dairy and other herds for disease; inoculates animals against disease; advises on care and breeding of animals; performs various other duties requiring a scientific knowledge of veterinary medicine.

0-65.20 Public Health Veterinarian.

Exercises surveillance of quality, purity and safety of food of animal origin intended for human consumption and investigates and controls animal diseases hazardous to man:

inspects sanitary conditions in slaughter-houses and examines animals intended for slaughter; inspects sanitary conditions in processing plants and other establishments concerned with handling and preparation of food of animal origin for human consumption; examines animal products intended for human consumption for quality, purity and safety; investigates cases of animal diseases communicable to man and initiates action to control and prevent their spread.

May apply and enforce animal quarantine regulations and decontamination measures.

0-65.90 Other Veterinarians.

This group includes veterinarians not elsewhere classified, for example those controlling import and export of animals and animal products; controlling drugs and vaccines used in veterinary practice; advising on the breeding, transport, care and health problems of laboratory animals; advising on and assisting in epidemiological and other surveillance of zoonoses; collaborating in the preparation of animals for space exploration experiments.

0-66 Veterinary Assistants

Workers in this unit group perform limited diagnostic, preventive and curative veterinary tasks to assist veterinarians, or independently.

Their theoretical and practical training in veterinary medicine is less than that of *Veterinarians* (0-65).

0-66.10 Veterinary Assistant.

Carries out, but only to a limited extent, diagnostic, preventive and curative veterinary duties as described under *Veterinarian (general) (0-65.10)*, more particularly as regards common diseases and disorders of animals, either independently or under the general direction of fully qualified veterinarian.

The workers in this group have not had the full training of *Veterinarians (0-65)*.

0-67 Pharmacists

Workers in this unit group make and dispense medicaments and related preparations according to doctors' prescriptions or established formulae and perform related tasks.

0-67.10 Pharmacist.

Makes and dispenses medicaments and related preparations according to prescriptions or formulae:

prepares or supervises preparation of medicaments according to doctors' prescriptions or established formulae; dispenses medical and surgical products according to prescriptions; handles poisons and toxic substances required for medical, domestic or other purposes and dispenses them according to regulations; performs tests to determine identity, purity and strength of drugs; preserves pharmaceuticals against deterioration; keeps records of prescriptions dispensed and special poisonous substances issued.

May prepare and supply, and advise on the use of, items such as veterinary medicines, chemical preparations for agricultural purposes and toilet and cosmetic products.

0-68 Pharmaceutical Assistants

Workers in this unit group assist pharmacists in the making and dispensing of medicaments in pharmacies, hospitals and dispensaries.

Their theoretical and practical training in pharmacy is less than that of fully qualified *Pharmacist (0-67.10)*.

0-68.10 Pharmaceutical Assistant.

Assists in a pharmacy, hospital or dispensary to make and dispense medicaments, under the direction of a pharmacist:

weighs, measures and mixes drugs and other pharmaceutical compounds according to instructions of *Pharmacist (0-67.10)*, and fills bottles, capsules or other containers; assembles quantities of drugs, medicaments and other pharmaceutical supplies according to medical prescriptions; prepares and affixes labels with instructions for taking or applying medication; performs other tasks to assist *Pharmacist (0-67.10)*.

May order and maintain supply of drugs and chemicals.

0-69 Dietitians and Public Health Nutritionists

Workers in this unit group plan and supervise the preparation of diets for individuals or groups, supervise and evaluate nutrition elements of health programmes and assist in appraising the various factors related to nutrition and food problems in the community.

Their functions include:

planning and supervising the preparation of therapeutic or other diets for individuals or for groups in hospitals, institutions and other establishments and for workers in particular sectors;

participating in programmes of nutrition education and in nutrition rehabilitation activities;

planning and co-ordinating nutrition programmes and advising on nutrition aspects of community food problems and health programmes.

0-69.10 Dietitian (General).

Plans and supervises the preparation of therapeutic or other diets for individuals or for groups in hospitals, institutions and other establishments and for workers in particular sectors; gives instruction in selection and proper preparation of food according to dietetic principles; performs duties related to nutrition programmes.

May be responsible for food purchasing on behalf of an organisation or establishment.

0-69.20 Public Health Nutritionist.

Appraises various factors related to nutrition and food problems in the community and plans and executes nutrition elements of health programmes:

investigates the state of nutrition in the community and serves as nutrition adviser to community health programmes; plans, co-ordinates and supervises nutrition elements of health programmes; participates in programmes of nutrition education and in nutrition rehabilitation activities for particular groups or the community.

0-69.90 Other Dietitians and Public Health Nutritionists.

This group includes dietitians and public health nutritionists not elsewhere classified, for example those acting as consultants to food processing and distributing firms or to manufacturers of food-processing equipment.

0-71 Professional Nurses

Workers in this unit group provide professional nursing services.

Their functions include:

providing professional nursing care and advice in hospitals, clinics or other establishments providing medical care and treatment;

providing professional nursing care and advice in private homes, schools, maternal and child health centres and nurseries;

providing nursing services and health information for employees in workplaces;

performing related tasks.

0-71.10 Professional Nurse (General).

Provides professional nursing services and advice in hospitals, clinics or other establishments which provide medical care and treatment:

gives professional nursing care and advice to ill, injured, infirm and obstetric patients and new-born infants in hospitals, clinics and other establishments which provide medical care and treatment; assists physicians and surgeons; administers medicines and drugs, applies surgical dressings and gives other forms of treatment prescribed by physicians and surgeons; observes and reports on the general condition of patients, and measures and records body temperature, rate of respiration and pulse beat; gives first-aid treatment in emergencies and attends seriously ill patients; helps patients to become adjusted to place and methods of treatment; attends women in childbirth and cares for new-born infants; gives instructions and advice regarding care of patients during convalescence; performs other professional nursing tasks, including supervision of rehabilitation exercises for patients or instruction in the use of orthopaedic aids.

0-71.20 Specialised Nurse.

Provides specialised professional nursing services in a medical establishment or elsewhere:

performs tasks similar to those of *Professional nurse (general) (0-71.10)* but specialises in a particular branch of nursing, such as obstetric, orthopaedic, pediatric or psychiatric nursing.

0-71.30 Public Health Nurse.

Provides, within a community health service, professional nursing care and advice in private homes, schools, maternal and child health centres and nurseries; performs other nursing tasks associated with the provision of community health services:

visits private homes and gives nursing care and treatment, under physician's instructions, for various types of illness and disorders; instructs families in the care of patients, in maternal and child care and in the maintenance of a healthy environment; assists physicians in maternal and child health centres; provides health services in schools; gives first-aid treatment in emergencies; arranges convalescent care; carries out immunisation programmes and performs other nursing tasks in the provision of community health services.

May specialise in a particular field of public health nursing and be designated accordingly.

0-71.40 Occupational Health Nurse.

Provides professional nursing services and health information for employees in workplaces:

gives first-aid treatment at place of employment for injuries and illnesses and arranges for further medical care, if necessary; renews surgical dressings and gives other routine treatment for minor injuries or disorders at workplace or patient's home; gives inoculations; assists with health examinations; keeps records of persons treated and prepares reports for use in compensation claims and for other purposes; informs employer concerning health problems among the employees; provides health and hygiene information to workers.

0-71.90 Other Professional Nurses.

This group includes professional nurses not elsewhere classified, for example those specialising in provision of consultant services to industrial and other organisations; or in giving private general nursing care to patients in their homes.

0-72 Nursing Personnel Not Elsewhere Classified

Workers in this unit group provide simple nursing services for patients, generally under the supervision of a physician or professional nurse.

They do not have the full training and theoretical knowledge of *Professional nurses (0-71)*.

0-72.10 Auxiliary Nurse.

Provides simple nursing services to patients, generally under the supervision of a physician or professional nurse:

performs a variety of simple nursing duties, such as preparing patients for examination and attending the examining physician, taking patient's temperature, pulse and respiration rates, giving prescribed medicines at fixed times, changing dressings, giving other simple treatments, feeding young children and elderly patients, assisting patients in personal care and attending to their comfort.

Nursing aid is classified in 5-99.40.

0-73 Professional Midwives

The workers in this unit group provide professional midwifery services in hospitals, clinics and elsewhere, including giving advice and assistance to women during childbirth, providing prenatal and postnatal nursing care of mother and infant, and participating in some aspects of health education.

0-73.10 Professional Midwife.

Gives professional care and advice to women to aid them during pregnancy, childbirth and the postnatal period:

gives care and advice to women in hospitals, other health units or private homes, to aid them during pregnancy, labour and postnatal period; conducts normal deliveries and cares for the new-born infant; recognises warning signs of abnormal or potentially abnormal conditions which necessitate referral to a physician and carries out emergency measures in the absence of medical help.

May treat or assist in the treatment of certain minor gynaecological disorders. May give advice and instruction on family planning and child care.

A professional nurse specialising in obstetrics is classified as *Specialised nurse (0-71.20)*.

0-74 Midwifery Personnel Not Elsewhere Classified

Workers in this unit group provide practical midwifery services as a rule in private homes, when there is no physician in attendance, in apparently normal obstetric cases.

Their general functions are similar to those of *Professional midwives (0-73)* but they do not have the full training and theoretical knowledge of the latter.

0-74.10 Auxiliary Midwife.

Provides practical care and assistance to women, usually in private homes, to aid them during pregnancy, childbirth and the postnatal period; takes care of the new-born infant.

The workers classified in this group do not have the full training and theoretical knowledge of *Professional midwife (0-73.10)*.

0-75 Optometrists and Opticians

Workers in this unit group prescribe and fit spectacles and perform related tasks.

Their functions include:

examining eyes and prescribing spectacles or treatment not involving the use of medicines, surgery or drugs, to conserve or improve vision;

assisting customers in choice of spectacle frames, fitting prescribed lenses into frames, and fitting frames or contact lenses to customers.

0-75.20 Optometrist.

Examines eyes and prescribes spectacles or treatment not involving the use of medicines, surgery or drugs, to conserve or improve vision:

examines eyes and determines visual defects by means of various tests and instruments; refers clients with ocular disease symptoms to an oculist; prescribes lenses or visual training to correct or improve vision; tests lenses to ensure conformity with prescription.

0-75.30 Dispensing Optician.

Assists customer in choice of frames, selects the lenses prescribed, fits lenses in frames and fits frames to customer, or fits contact lenses according to prescription:

reads lens specifications prescribed; measures customer for such facial features as bridge length and pupillary distances; or measures dimensions of eyes and diameter of cornea; assists customer in choosing frames, advising correct size and appropriate shape; determines type, size and shape of contact lenses needed; mounts lenses in frame and adjusts frames to fit customer, or positions contact lenses on patient's eyes to determine compatibility and instructs patient in insertion and removal of contact lenses; makes repairs of spectacle frames.

May sell other optical goods, such as non-prescription sun-glasses.

0-76 Physiotherapists and Occupational Therapists

Workers in this unit group provide special medical therapeutic services.

Their functions include:

treating sprains, healing fractures, paralysis and circulatory or nervous disorders by physical means, usually as prescribed by a physician;

participating in planned medically oriented vocational, educational or recreational activities designed to rehabilitate physically or mentally disabled persons;

massaging clients or patients to improve circulation, soothe or stimulate nerves, facilitate elimination of waste matter, stretch contracted tendons and produce other therapeutic effects.

0-76.20 Physiotherapist.

Treats sprains, healing fractures, paralysis, circulatory and nervous disorders by physical means, usually as prescribed by a physician:

instructs patients in remedial exercises to correct muscle ailments and deficiencies; administers massage and performs other body manipulations; gives treatment by infra-red or other rays, therapeutic baths or other water treatments and by moist packs and compresses; utilises mechanical devices such as vibrating and exercising machines.

May instruct in use of prosthetic appliances.

0-76.30 Occupational Therapist.

Participates in planned medically oriented vocational, educational or recreational activities designed to rehabilitate physically or mentally disabled persons:

consults physicians and physiotherapists regarding the therapeutic activities suitable for individual patients; helps patients to regain physical capacities or mental and emotional stability by occupying them in creative and manual arts, such as weaving, clay modelling and leather working, or vocational activities such as typing and using power tools or training in everyday activities; writes reports on patient's reactions to occupational therapy and progress made; keeps equipment in good working order.

May design special equipment. May organise or direct occupational therapy programme in a hospital or rehabilitation centre.

0-76.40 Masseur.

Massages clients or patients to improve circulation, soothe or stimulate nerves, facilitate elimination of waste matter, stretch contracted tendons and produce other therapeutic effects:

plans treatment according to client's needs or physician's directions; rubs, kneads, strokes and otherwise manipulates patient's body, using oil or other lubricant as required; instructs and supervises client in reducing, corrective or other physical exercises.

May administer vibration treatment, hot baths and ray treatments in conjunction with massage.

0-77 Medical X-Ray Technicians

Workers in this unit group operate X-ray equipment to make radiographs for medical diagnostic purposes or to give therapeutic treatment.

Industrial radiographer is classified in 0-39.90.

0-77.10 Medical X-Ray Technician.

Operates X-ray equipment to make radiographs for medical diagnostic purposes or to give therapeutic treatment:

prepares patient for exposure to rays and, when necessary, fixes lead plates to protect parts of body not to be exposed to X-rays; manipulates controls of machine to regulate the time and intensity of exposure; takes X-ray photograph or applies X-ray treatment under direction of radiologist; develops, fixes, washes and dries X-ray film; makes minor repairs to equipment; keeps records and files.

May specialise in diagnostic or therapeutic radiography and be designated accordingly.

0-79 Medical, Dental, Veterinary and Related Workers Not Elsewhere Classified

Workers in this unit group provide professional medical, dental, veterinary and related services not performed by those classified elsewhere.

Their functions include:

diagnosing and treating, mainly by manipulative methods, disorders of bones, muscles, blood vessels and other tissues of the human body;

relieving illness believed due to pressure upon nervous system at the spine by adjusting joints of the spine;

promoting, and supervising implementation of, measures to restore or improve sanitary environmental conditions;

writing specifications for and fitting artificial limbs, braces and other appliances for body deformities and disorders following prescription of physician;

performing related tasks.

0-79.20 Osteopath.

Diagnoses and treats, mainly by manipulative methods, disorders of bones, muscles, blood vessels and other tissues of the human body:

examines patient by making a structural analysis of body, using laboratory methods, instruments and other devices; considers results of examination and factors affecting health of patient, such as diet, age and living conditions, and diagnoses nature of disorders; corrects disorders mainly by manipulation or prescribes supports and other medical aids and appliances.

May, if law permits, practise certain branches of medical science.

0-79.30 Chiropractor.

Relieves illness believed due to pressure upon nervous system at the spine by adjusting joints of the spine:

diagnoses disorders by making a structural analysis of body, using manipulative and laboratory or instrumental methods; corrects position of displaced vertebrae by manipulation; advises patient on course of treatment to be followed, such as corrective exercises, diet or physiotherapeutic treatments.

0-79.40 Sanitarian.

Inspects the environment, promotes measures to restore or improve sanitary conditions and supervises their implementation:

gives advice on environmental sanitary problems; initiates action to maintain the hygienic quality and to prevent pollution of water, air, food or soil; promotes preventive and corrective measures such as control of disease-carrying organisms and of harmful substances in the atmosphere, hygienic food handling, proper disposal of waste, cleaning of public places and eradication of other hazards to sanitation.

Sanitary engineers are classified in 0-22.50.

0-79.50 Orthopaedic Technician.

Writes specifications for and fits artificial limbs, braces and other appliances for body deformities and disorders following prescription of physician:

examines affected area for protrusions, contusions and other factors affecting fitting and placing of artificial limbs and orthopaedic appliances and takes measurements required; sends specifications of appliance to *Orthopaedic appliances maker and repairer (8-42.45)*, or other specialised worker, to fabricate article; fits finished appliance on patient, making necessary adjustments; instructs patient in proper use of appliance.

0-79.90 Other Medical, Dental, Veterinary and Related Workers.

This group includes medical, dental, veterinary and related workers not elsewhere classified, for example those treating sickness through the application of various herbs and medicinal plants; those treating patients with a system of physical culture and drugless treatment of disease by methods aimed to stimulate or assist nature; those treating body ailments and nervous disorders through mental influence and suggestion; those diagnosing and treating minor ailments of the human foot such as corns, callouses, deformed toenails, flat feet and other disorders and advising patients on further treatment, proper foot care and suitable footwear.

0-8 STATISTICIANS, MATHEMATICIANS, SYSTEMS ANALYSTS AND RELATED TECHNICIANS

Workers in this minor group conduct research in the science of statistics to develop new and improved statistical methodology, advise on practical applications of statistical methods, plan and conduct statistical surveys and evaluate, organise and interpret statistical data; conduct research in fundamental mathematics, develop and improve mathematical techniques, advise on application of mathematical techniques for solution of problems in specific fields; apply knowledge of mathematics, statistics and financial affairs to the design and operation of insurance and pensions schemes; analyse data-processing needs and problems of business enterprises and other organisations, advise on and introduce automatic data-processing systems; prepare programmes to control automatic processing of data by computer; and perform technical tasks contributory to the work of statisticians, mathematicians and actuaries. They are classified in the unit groups listed below:

0-81	Statisticians.
0-82	Mathematicians and Actuaries.
0-83	Systems Analysts.
0-84	Statistical and Mathematical Technicians.

0-81 Statisticians

Workers in this unit group conduct research into the mathematical basis of the science of statistics;

develop new and improved statistical methodology;

advise on practical applications of statistical methods;

plan and conduct statistical surveys;

apply statistical techniques to evaluate, organise, analyse and interpret numerical data obtained from special surveys or other sources.

0-81.10 Statistician, General.

Conducts research to develop new and improved statistical methods, advises on practical applications of statistical methods, plans and conducts statistical surveys, and organises, analyses and interprets statistical data:

studies mathematical theories and proofs basic to science of statistics and develops new and improved methods for obtaining and evaluating numerical data; advises on applicability and efficiency of particular statistical methods for specified purposes; plans sample surveys and other statistical inquiries, designs survey questionnaires and conducts surveys; organises processing of data from surveys and other sources into tabular and other forms and directs computations; evaluates, organises, analyses and interprets data and presents them in forms suitable for users; writes reports on methodological questions, design, execution and results of surveys, interpretation and evaluation of data, and related matters.

0-81.20 Mathematical Statistician.

Conducts research into mathematical basis of science of statistics, develops new and improved statistical methodology and advises on practical applications of statistical methods and techniques:

studies theories of probability, inference, variance and other mathematical theories and proofs basic to science of statistics to discover mathematical bases for new and improved methods of obtaining and evaluating numerical data; designs and tests new statistical methodology, experiments with sampling applications and analytical techniques and makes recommendations concerning utilisation of statistical methods and techniques for particular purposes; investigates and evaluates statistical methods employed by other specialists, such as applied statisticians and physical, life and social scientists.

0-81.30 Statistician (Applied Statistics).

Plans and conducts statistical surveys, evaluates, organises, analyses and interprets statistical data and prepares reports:

determines survey designs and drafts questionnaires to elicit information required, consulting *Mathematical statistician (0-81.20)* if necessary; conducts sample surveys and directs other statistical inquiries; evaluates completeness and reliability of raw data and adjusts and weights figures accordingly; organises processing of data into tabular, graphical and other forms amenable to analysis and interpretation and directs computation of averages, ratios, distributions, correlation coefficients and other items; analyses and interprets data and presents them in tabular, graphical, chart, report or other forms suitable for known or potential users.

May specialise in collecting, processing, evaluating or analysing data. May make projection of statistical series. May specialise in statistical applications in particular field such as biology, agriculture, demography, health, education, physical sciences, engineering, economics or finance and be designated accordingly.

0-82 Mathematicians and Actuaries

Workers in this unit group conduct research in fundamental mathematics to advance mathematical knowledge and develop and improve mathematical techniques;

advise on practical applications of mathematical principles and techniques to solution of specific problems in scientific research, engineering, logistics, computer applications and other areas;

conduct logical analyses of management problems and formulate mathematical models for programming and solution by computer;

apply knowledge of mathematics, statistics and financial affairs to design and operation of pensions schemes and life, health, social and casualty insurance systems.

0-82.20 Mathematician (Pure Mathematics).

Conducts research in fundamental mathematics to advance mathematical knowledge and develop and improve mathematical techniques:

studies fundamental theories of algebra, geometry, number theory, logic and other branches of mathematics and tests hypotheses and alternative mathematical theories with a view to increasing knowledge; experiments to find new applications of mathematical principles and techniques, or to develop and improve mathematical methodology for use in particular applications, such as in scientific investigations, engineering projects, military planning, electronic data-processing and management decision-making.

May utilise or direct use of electronic computers and other aids in solving problems.

0-82.30 Mathematician (Applied Mathematics).

Advises on practical applications of mathematical principles and techniques and applies them to solution of problems in scientific research, engineering, management and other activities:

applies mathematical principles and techniques to solution of specific problems in research, development, production, logistics and other functional areas, utilising knowledge of field in which applied such as electronics, atomic energy, life sciences, space science and business management; advises other specialists on applications of mathematical methods in their particular fields.

May utilise or direct use of desk calculators, electronic computers and other aids in solving problems.

Workers specialising in operations-research analysis are classified in 0-82.40.

0-82.40 Operations-Research Analyst.

Conducts logical analyses of management problems and formulates mathematical model of each problem for programming and solution by computer:

analyses problem requiring decision, such as making choice among various proposals to ensure maximum probability of profit, or effective result, in relation to financial cost or inputs (for example analysing and evaluating alternative production processes in terms of effectiveness and cost); prepares mathematical model, in form of one or more equations that relate constants, variables, restrictions, alternatives and conflicting objectives and their numerical parameters, assembles data relating to or representative of variables in the model, directs computations and other data preparation and arranges for programming to test model and solve equations by computer; reviews results of testing and reformulates model if necessary; prepares report for management describing solution of the problem, or showing ranking of different alternative solutions, according to desirability and probability of success, when there is no single solution.

May evaluate results of implementation of proposals based on operations-research analysis. May develop and apply time and cost networks, such as Programme Evaluation and Review Technique (P.E.R.T.), to plan and control large-scale business projects.

0-82.50 Actuary.

Applies knowledge of mathematics, statistics and financial affairs to design and operation of pension schemes and life, health, social and casualty insurance systems:

analyses relevant statistics and other data and applies statistical and mathematical principles to construct probability tables for such contingencies as mortality, accident, sickness, disability, unemployment and retirement; calculates required premiums or contribution rates taking account of such factors as administrative expenses, interest rates, and age, sex and occupation of clients; assesses surrender value of policies lapsed before expiry of contracted term; ensures safe and profitable investment of funds and that adequate reserves are available to meet liabilities at any given time; determines equitable basis for distribution of surplus in profit-sharing insurance.

0-83 Systems Analysts

Workers in this unit group analyse data-processing needs and problems of commercial, industrial and other business enterprises, and of research, administrative and other organisations, advise on the feasibility and cost of using automatic data-processing (A.D.P), and devise and introduce appropriate A.D.P. systems and procedures.

0-83.10 Systems Analyst.

Analyses data-processing needs and problems of client or employer, advises on feasibility of automatic data-processing and develops appropriate systems and procedures:

consults with client or management to ascertain specific output requirements from data-processing, such as items to be identified, degree of summarisation permitted and format for presentation of results; assesses feasibility and cost of using automatic data-processing system; examines input data available, determines modifications required as regards standardisation and workflow sequence to permit application of A.D.P. system and, in consultation with personnel concerned, devises alternative or revised methods and procedures, combining economy with efficiency, for supply of suitable input to computer; prepares process flow charts and other specifications of A.D.P. system and procedures for guidance of *Programmer (0-84.20)*; conducts practical trials to verify suitability of system and makes necessary modifications.

May direct preparation of programmes. May co-ordinate activities of workers performing successive phases of problem analysis, solution outlining, solution detailing, programme coding, programme testing and error elimination. May advise on type of A.D.P. equipment most suitable for client and direct and co-ordinate installation of A.D.P. systems, phasing change-over and planning parallel running of old and new data-processing systems. May specialise in particular aspect of systems analysis such as feasibility studies or introduction of A.D.P.

Operations-research analyst is classified in 0-82.40.

0-84 Statistical and Mathematical Technicians

Workers in this unit group prepare programmes to control the automatic processing of data by computer and perform other technical tasks contributory to the work of, and normally under the direction and supervision of, statisticians, mathematicians and actuaries.

0-84.20 Computer Programmer.

Prepares programmes to control automatic processing of data by computer:

studies programme intent, output requirements, nature and sources of raw input data, internal checks and other controls required, or, where available, uses specifications and instructions prepared by *Systems analyst (0-83.10)*; prepares detailed logical workflow charts and diagrams and establishes sequence of steps for input data preparation and computer processing operations, taking account of internal checks and other controls needed; converts flow charts and diagrams into computer programme using programme language; converts the programme, or directs its conversion, into code form to derive machine-processable instructions suited to type of computer in use; conducts trial run with sample data to test validity of programme and amends programme as necessary; compiles written instructions for computer operating staff.

May adapt existing programmes to revised requirements. May specialise in preparation of standard programming routines for solution of common problems or in preparation of routines for translation from one programme language to another, and be designated accordingly.

0-84.90 Other Statistical and Mathematical Technicians.

This group includes statistical and mathematical technicians not elsewhere classified, for example those who carry out, normally under the direction and supervision of statisticians, mathematicians and actuaries, technical tasks contributory to research in statistical, mathematical and actuarial sciences, to analysis, mathematical formulation and solution of problems, and to other practical applications of statistical, mathematical and actuarial methods and techniques.

0-9 ECONOMISTS

Workers in this unit group conduct research and apply the principles and theories of economics to formulate solutions to economic problems such as problems of economic development, resources allocation, production, productivity, finance, trade, wages and incomes policies, prices, consumption or marketing. They are classified in the unit group mentioned below:

0-90 Economists.

0-90 Economists

Workers in this minor group conduct research and apply the principles and theories of economics to formulate solutions to economic problems arising from production, distribution and exchange of goods and services and referring to such matters as composition of production, markets, trade trends, pricing policies, credit structures, consumption, investment of capital, wages and productivity, and advise on economic questions in a specialised field such as finance, taxation, international trade, labour, agriculture or industrial production and investigate present and potential market for particular goods and services.

0-90.10 Economist (General).

Conducts research and applies the principles and theories of economics to formulate solutions to economic problems:

studies organisation of production, marketing methods, trade trends, pricing policies, credit structures, consumption, employment, productivity and other economic aspects of existing or postulated situations; compiles, analyses and interprets economic and statistical data, constructs mathematical models to represent economic phenomena and employs other econometric techniques; forecasts future demand for goods and services, movements in prices and interest rates, changes in labour market conditions and trends in other economic factors; formulates plans to aid in solution of economic problems confronting agricultural, industrial, commercial and other enterprises, and governmental and other organisations.

0-90.20 Economist (Specialised).

Conducts research and advises on economic problems in a particular branch of economics:

performs tasks similar to those of *Economist (general) (0-90.10)* but specialises in a particular branch of economics such as finance, international trade, labour, prices, taxation or agricultural or industrial economics.

May be designated according to subject area specialisation.

0-90.30 Market Research Analyst.

Conducts research to determine existing level of sales for particular products and services and to assess potential market and future trend:

ascertains from client or employer extent and nature of market information required; analyses statistics on wholesale and retail trade, estimates future trends in the economy and makes projections of demand for particular products and services; selects samples of population representative of local, regional or national areas to test consumer reaction to particular products or services, devises questionnaires to elicit required information and organises field surveys or arranges contracts for surveys; studies methods and costs of distribution, convenience and customer appeal of packaging and other aspects of the economics of marketing; investigates and analyses prices and level of sales of competitive products and marketing methods used by competitors; evaluates data obtained from all sources and prepares detailed reports on market situation and future trends providing information on such matters as pricing policy, the best geographical areas and income groups for deployment of sales campaigns, desirable modifications of product or service to improve their appeal to customers, and improvements necessary in distribution and packaging methods to increase marketing efficiency.

1-1 ACCOUNTANTS

Workers in this minor group plan and direct accounting services, advise on accountancy problems, and plan and conduct financial audits. They are classified in the unit group mentioned below:

1-10 Accountants.

1-10 Accountants

Workers in this unit group plan and administer accounting services, advise on accountancy problems, and plan and conduct audits of accounts of private persons, enterprises, institutions and governmental organisations.

1-10.10 Accountant (General).

Plans and administers accounting services and advises on accountancy problems of private persons, enterprises, institutions and governmental organisations:

plans, installs and advises on budgetary, accounts controlling and other accounting systems; assists in formulation of budget policies and advises on financia problems, management accountancy, administration and organisation; prepares and certifies financial statements for presentation to management, board of directors, stockholders or statutory public bodies; prepares or reviews tax returns and contests claims before tax officials; conducts financial investigations in matters such as suspected fraud, royalty payment disputes, insolvency and bankruptcy; acts as liquidating trustee in dissolution proceedings and as representative, arbitrator or umpire in negotiation or arbitration of accountancy business; audits accounts and bookkeeping records; supervises accounting activities in an individual establishment and plans and directs work of bookkeepers, cashiers and bookkeeping clerks or, as public accountant, provides accountancy services on a fee-paying basis.

1-10.20 Auditor.

Plans and conducts audit of accounts, bookkeeping records and financial statements of private persons, enterprises, institutions and governmental organisations:

plans audit, deciding degree of detailed checking needed and points requiring particular attention, and carries out audit directly or with help of audit clerks; inspects recording of transactions in daybooks and journals and verifies transfer of journal entries to ledgers; counts cash in hand, and checks bank balance; inspects and verifies negotiable securities and notes receivable and payable; examines cancelled cheques and receipts for cash payments and purchases, verifies journal and ledger entries and checks accuracy of arithmetical totals; prepares report for employer or client on scope of audit and financial conditions found and recommends improvements in accounting procedures or other desirable action.

1-10.90 Other Accountants.

This group includes accountants not elsewhere classified, for example those who specialise in cost accounting. The cost accountant applies the principles of accountancy and statistics to plan, install and direct cost-finding and reporting systems designed to inform management of total cost per unit of output, the relative importance of costs for raw materials, labour, fuel, equipment, general overhead and other costs, and the effect of changes in quantities and prices of inputs.

1-2 JURISTS

Workers in this minor group plead cases or conduct prosecutions in courts of justice, preside over judicial proceedings and pronounce judgments, give advice on legal matters, draw up legal documents, draft legislation and perform other legal functions. They are classified in the unit groups listed below:

1-21 Lawyers.
1-22 Judges.
1-29 Jurists Not Elsewhere Classified.

1-21 Lawyers

Workers in this unit group plead cases or conduct prosecutions in courts of justice.

Their functions include:

examining the circumstances of disputes or reported crimes to ascertain the facts;

determining the applicable law;

and preparing pleadings or cases for prosecution and conducting them in court.

1-21.10 Lawyer.

Prepares and pleads cases and conducts prosecutions in courts of justice:

examines circumstances of civil disputes or charges alleging criminal acts or other infringements of the law, interviews clients and witnesses and takes other measures to ascertain facts of case; studies appropriate law codes, statutes, regulations and previous decisions to determine applicable law; correlates findings and formulates pleadings or case for prosecution; conducts case in court of justice, examining and cross-examining witnesses and preparing and presenting final arguments in support of case before judge or jury.

May advise clients as to legal rights and obligations.

May specialise in particular types of cases, such as civil or criminal proceedings, and be designated accordingly.

1-22 Judges

Workers in this unit group preside over judicial proceedings and pronounce judgments in courts of justice.

Their functions include:

ruling on procedure in court;

weighing the evidence presented;

determining the rights and obligations of the parties involved;

instructing juries on points of law;

pronouncing judgments.

1-22.10 Judge.

Presides over judicial proceedings and pronounces judgments in courts of law:

listens to presentation of pleadings or cases for prosecution and rules on admissibility of evidence, methods of conducting testimony and other matters of procedure; establishes rules of procedure on questions for which no standard procedures already exist; inquires into and weighs evidence presented by the parties and determines rights and obligations of parties in light of facts established or summarises facts of case for jury, instructs them on relevant points of law and directs them to reach a decision; pronounces judgment in light of own findings or those of jury.

May preside over divorce, criminal, appeals, arbitration or other particular type of court and be designated accordingly. May sit as member of a panel of judges, or preside over panel of judges.

1-29 Jurists Not Elsewhere Classified

Workers in this unit group perform legal functions not elsewhere classified.

Their functions include:

giving advice on legal aspects of personal, business and administrative problems;

representing clients in minor lawsuits and briefing lawyers on their behalf in major lawsuits;

drawing up legal documents;

arranging property transfers;

drafting government legislation;

studying jurisprudence, writing comparative analyses and compiling law codes;

performing legal research related to the foregoing functions;

performing various other legal functions.

1-29.10 Jurist (except Lawyer or Judge).

Performs legal functions (other than pleading cases, prosecuting or presiding over proceedings in courts or law), such as one or more of the following:

advising clients on legal aspects of personal and business problems; representing clients in minor lawsuits and briefing *Lawyer (1-21.10)* on behalf of clients in major lawsuits; drawing up legal documents, taking affidavits and administering oaths and affirmations; arranging probate and administering estates of deceased persons; verifying land titles and arranging property transfers; advising commercial, industrial, governmental and other organisations on legal matters; studying jurisprudence, writing comparative analyses and compiling law codes; drafting new laws and advising on legal aspects of government legislation; performing legal research related to the foregoing functions.

May be employee of an enterprise, institution or government department and represent employer in legal proceedings.

1-3 TEACHERS

Workers in this minor group conduct classes and give private lessons to instruct students at the third, second, first or pre-primary level, educate handicapped persons, undertake research and advise on teaching methods and instructional aids, organise and direct teaching activities in schools, and perform related tasks. They are classified in the unit groups listed below:

1-31	University and Higher Education Teachers.
1-32	Secondary Education Teachers.
1-33	Primary Education Teachers.
1-34	Pre-Primary Education Teachers.
1-35	Special Education Teachers.
1-39	Teachers Not Elsewhere Classified.

Physical training instructors and sports coaches instructing in educational establishments are classified in unit group 1-80.

1-31 University and Higher Education Teachers

Workers in this unit group conduct classes, deliver lectures, tutor and instruct students in courses at the third level of education.

Their functions include:

conducting courses of instruction at the third level by means of lectures, demonstrations and supervision of students' laboratory and other practical work, setting and marking examination papers and performing related tasks, generally specialising in a particular subject within such fields as physical sciences, engineering, life sciences, medical sciences, mathematics, economics, law, theology, education, fine arts or agriculture, or conducting third-level courses in applied science or technology;

providing similar instruction by private lessons.

1-31.20 Teacher in Physical Sciences (Third Level).

Conducts courses of instruction at the third level of education in physical science subjects:

undertakes scientific research and study, based on documentary and other sources, to keep abreast of developments in physical sciences; prepares and delivers lectures to students in third-level courses in one or more physical science subjects, such as chemistry, physics, geophysics, geology, meteorology or astronomy; conducts student classes, stimulating and guiding discussion of selected topics in their field of study; acts as tutor to individual students, guiding and supervising their studies and research; conducts experiments and demonstrations as part of instruction of students; supervises students' laboratory and other practical work; prepares, or participates in preparing, examination papers and marks students' written exercises and examination papers.

May deliver extramural lectures. May organise and direct a faculty or academic department of a university or other establishment of post-secondary education. May organise and direct extramural practical training for students in their field of study. May specialise in giving private tuition.

1-31.25 Teacher in Engineering and Architecture (Third Level).

Conducts courses of instruction at the third level of education in engineering, architecture and town planning:

performs tasks similar to those of *Teacher in physical sciences (third level) (1-31.20)* but specialises in one or another branch of engineering (including civil, electrical, mechanical, chemical, metallurgical and industrial engineering), architecture or town planning.

Workers teaching industrial arts at the third (post-secondary) level, who conduct courses mainly of a practical nature for industrial technicians, foremen-supervisors and vocational training instructors in manufacturing, mining, construction and related techniques are classified in 1-31.80.

1-31.30 Teacher in Life and Medical Sciences (Third Level).

Conducts courses of instruction at the third level of education in life science and medical science subjects:

performs tasks similar to those of *Teacher in physical sciences (third level) (1-31.20)* but specialises in one or another branch of life science (including biology, botany, zoology, biochemistry, physiology, anatomy, pharmacy, pharmacology, bacteriology) or one or another branch of medical science (including clinical medicine, medical or dental surgery, gynaecology, pediatrics, tropical medicine, neurology, dermatology, ophthalmology, radiology, public health, veterinary medicine).

Workers teaching medical therapy, advanced nursing and related arts (including optometry) at the third (post-secondary) level are classified in 1-31.75.

1-31.40 Teacher in Mathematics (Third Level).

Conducts courses of instruction at the third level of education in mathematics and related subjects:

performs tasks similar to those of *Teacher in physical sciences (third level) (1-31.20)* but specialises in pure mathematics (including actuarial science, statistical theory, and similar academic subjects) and applied mathematics, as in design and functions of computers and operations-research analysis.

1-31.45 Teacher in Economics and Commerce (Third Level).

Conducts courses of instruction at the third level of education in economics, business management and related subjects:

performs tasks similar to those of *Teacher in physical sciences (third level) (1-31.20)* but specialises in giving courses of instruction in economics, business management, accountancy, finance and banking, and related subjects.

1-31.50 Teacher in Law (Third Level).

Conducts courses of instruction at the third level of education in law subjects:

performs tasks similar to those of *Teacher in physical sciences (third level) (1-31.20)* but specialises in the field of law.

1-31.55 Teacher in Education (Third Level).

Conducts courses of instruction at the third level of education in the subject of education and supervises practical training in school class work of trainee-teachers:

performs tasks similar to those of *Teacher in physical sciences (third level) (1-31.20)* but specialises in the subject of education (including the theory, history, psychology and sociology of education, the theory and practice of class teaching, class management and organisation of school systems); plans and supervises practical training of trainee-teachers in class work in first- and second-level schools.

1-31.60 Teacher in Agricultural Science (Third Level).

Conducts courses of instruction at the third level of education in agricultural science subjects:

performs tasks similar to those of *Teacher in physical sciences (third level) (1-31.20)* but specialises in agricultural science subjects such as horticulture and other branches of agronomy, animal husbandry, soil and water science, farm management, silviculture and forest development.

1-31.65 Teacher in History, Philosophy, Sociology and Related Social Sciences (Third Level).

Conducts courses of instruction at the third level of education in history, philosophy, sociology and related social sciences:

performs tasks similar to those of *Teacher in physical sciences (third level) (1-31.20)* but specialises in history, philosophy, sociology, anthropology, geography, archaeology, political science, theology, diplomacy, international affairs and other social science subjects.

1-31.70 Teacher in Languages and Literature (Third Level).

Conducts courses of instruction at the third level of education in languages and literature:

performs tasks similar to those of *Teacher in physical sciences (third level) (1-31.20)* but specialises in giving instruction, at the third level of education, in one or more ancient or modern languages, literature, philology, journalism and related subjects.

May give instruction and vocational training in translating and interpreting from one language to another.

1-31.75 Teacher in Medical Therapy, Advanced Nursing and Related Arts.

Conducts courses of instruction at the third level of education in medical therapy, nursing and related subjects:

performs tasks similar to those of *Teacher in physical sciences (third level) (1-31.20)* but specialises in giving courses of instruction and vocational training in such subjects as advanced nursing, midwifery, physiotherapy, infant care, occupational therapy, dietetics, osteopathy, chiropractics, sanitation, optometry and medical X-ray techniques.

1-31.80 Teacher in Industrial Arts (Third Level).

Conducts courses of instruction at the third level of education in techniques of manufacturing, mining and construction:

performs tasks similar to those of *Teacher in physical sciences (third level) (1-31.20)* but specialises in industrial arts subjects; gives instruction, at the third level of education, in courses which have a practical orientation and are intended, for example, to train industrial technicians, foremen-supervisors and vocational training instructors, such as courses in applied technology in engineering, industrial processing and other manufacturing, mining, construction and related fields; generally teaches in specialised training institutes and technological colleges outside the regular university and academic college system.

1-31.90 Other University and Higher Education Teachers.

This group includes university and higher education teachers not elsewhere classified, for example those who specialise in giving instruction, at the third level of education, in advertising, family planning, forensic science, community development, computer programming, co-operatives, home economics, industrial designing, library science, marketing, meteorological observation, military science, music, art painting, sculpture, navigation, public administration, sales methods, social welfare, telecommunications services, transport services, trade unionism or youth leadership.

1-32 Secondary Education Teachers

Workers in this unit group conduct courses of instruction at the second level of education in secondary schools and other establishments, and through private lessons.

Their functions include:

teaching pupils, at the second level of education, languages and literature, mathematics, natural science, social studies, fine arts, commercial and secretarial subjects, arts, trades and crafts, domestic science, agricultural science and other subjects in secondary schools and elsewhere.

Instructors occupied mainly in giving vocational training to apprentices and other employees at their place of work are classified in the occupational group corresponding to the type of work in which they give on-the-job vocational training, for example instructor in fur tailoring is classified in 7-92.20, instructor in machine-tool setting and operating in 8-33.10, instructor in electrical fitting in 8-51.10, and so forth.

1-32.15 Languages and Literature Teacher (Second Level).

Instructs pupils in an establishment of secondary education in languages and literature:

prepares annual programmes of work in classical languages, modern languages and literature within limitations of specified or standard curriculum, for classes in selective or comprehensive secondary school; gives instruction at the second level of education in particular subject field, conducts discussions, supervises written work and maintains discipline in class; sets practice exercises, tests and examinations and marks pupils' work; keeps pupils' work performance, attendance and other records and reports on their progress to head teacher and parents.

May organise or supervise pupils' extra-curricular activities. May plan and supervise activities of school department of languages and literature and be designated accordingly. May also give instruction in another subject field.

1-32.20 Mathematics Teacher (Second Level).

Instructs pupils in an establishment of secondary education in mathematics and related subjects:

performs tasks similar to those of *Languages and literature teacher (second level) (1-32.15)* but specialises in giving instruction, at the second level of education, in mathematics and related subjects.

1-32.30 Natural Science Teacher (Second Level).

Instructs pupils in an establishment of secondary education in natural science subjects, such as chemistry, physics and biology:

performs tasks similar to those of *Languages and literature teacher (second level) (1-32.15)* but specialises in giving instruction, at the second level of education, in one or more natural science subjects such as chemistry, physics, biology, physiology, zoology or botany.

1-32.40 Social Studies Teacher (Second Level).

Instructs pupils in an establishment of secondary education in social studies such as history, sociology, economics and geography:

performs tasks similar to those of *Languages and literature teacher (second level) (1-32.15)* but specialises in giving instruction, at the second level of education, in one or more social studies subjects such as archaeology, history, government, civics, religion, sociology, economics or geography.

1-32.50 Fine Arts Teacher (Second Level).

Instructs pupils, in an establishment of general or specialised secondary education, in fine arts subjects such as architecture, drawing and painting, music and dramatics:

performs tasks similar to those of *Languages and literature teacher (second level) (1-32.15)* but specialises in giving instruction, at the second level of education, in one or more fine arts subjects such as architecture, drawing, painting and sculpture, music and dramatics.

1-32.60 Commercial and Secretarial Teacher (Second Level).

Instructs pupils, in an establishment of general or specialised education, in commercial and secretarial subjects:

performs tasks similar to those of *Languages and literature teacher (second level) (1-32.15)* but specialises in giving instruction in one or more commercial and secretarial subjects such as bookkeeping, business principles and practice, stenography, typing, filing and records systems and operation of office machines.

May maintain relations with employers and placement services and assist students to find employment on termination of course.

1-32.70 Agricultural Science Teacher (Second Level).

Instructs pupils, in an establishment of general or specialised secondary education, in agronomy, animal husbandry and related subjects:

performs tasks similar to those of *Languages and literature teacher (second level) (1-32.15)* but specialises in giving instruction in one or more agricultural science subjects such as elementary agronomy, horticulture, field crop growing, animal husbandry, elementary soil and water technology and farm economics; organises and supervises pupils' practical field work.

1-32.75 Domestic Science and General Nursing Teacher.

Instructs pupils, in an establishment of general or specialised secondary education, in domestic science subjects and general nursing:

performs tasks similar to those of *Languages and literature teacher (second level) (1-32.15)* but specialises in giving instruction in domestic science subjects such as hygiene, dietetics, infant care, home management, kitchen and laundry techniques or practical nursing subjects such as elementary anatomy and physiology, hygiene, first aid, uses of common drugs and care of the sick.

1-32.80 Technical Education Teacher (Second Level).

Instructs pupils, in an establishment of general or specialised secondary education, in crafts, industrial arts and other technical subjects:

performs tasks similar to those of *Languages and literature teacher (second level) (1-32.15)* but specialises in giving instruction, at the second level of education, in one or more more crafts, industrial arts or other technical subjects such as working in wood, metals, stone, leather or other material, technical drafting, graphic arts, photography, elementary mechanical and electrical engineering, and other industrial arts and crafts; gives instruction in basic theory underlying industrial arts and crafts, properties of materials, functions and proper use of tools and machines, safe practices and other aspects of the practice of arts and crafts; organises and supervises practical work of students.

1-32.90 Other Secondary Education Teachers.

This group includes secondary education teachers not elsewhere classified, for example those occupied primarily in giving instruction, at the second level of education, in philosophy, principles and practice of physical education, pedagogy or other subject areas not covered by teachers described in the preceding definitions, and those occupied mainly in giving private lessons in any subject at the second level of education.

1-33 Primary Education Teachers

Workers in this unit group teach in establishments of primary education or give private lessons at the first level of education.

Their functions include:

teaching reading, writing, arithmetic and other subjects of elementary education to children in primary schools, other establishments of primary education and elsewhere, or teaching such subjects to adults who have not completed the first level of education.

1-33.20 First-Level Education Teacher.

Teaches primary academic subjects and elementary principles of social behaviour to children in an establishment of primary education:

prepares annual programme of work in reading, writing, arithmetic and other primary academic subjects for class in selective or comprehensive primary school; gives instruction in primary academic subjects, conducts discussion and supervises work in class; sets practical exercises and tests and marks children's work; maintains discipline in class and instructs children in elementary principles of social behaviour by illustration and example; keeps children's work performance, attendance and other records and reports on their academic progress and social adjustment to head teacher and parents.

May also teach simple arts and crafts. May organise and supervise school pupils' extra-curricular activities. May also teach reading, writing and other primary subjects to adults. May take charge of school in addition to performing regular teaching tasks.

1-33.90 Other Primary Education Teachers.

This group includes primary education teachers not elsewhere classified, for example those mainly occupied in giving private lessons at the first level of education, or in teaching woodwork, basket-weaving, singing, art, sewing, or other arts and crafts in establishments of primary education, or in teaching reading, writing and other primary education subjects to adults who have not completed the first level of education, or in teaching the elements of the national language to newly arrived immigrants.

1-34 Pre-Primary Education Teachers

Workers in this unit group organise group and individual educational activities in kindergartens and nursery schools, for children below primary-school age, to promote physical, mental and social development.

1-34.20 Kindergarten Teacher.

Trains and organises activities of children in kindergarten to promote their physical, mental and social development:

plans, organises and conducts such activities as plays, discussions, story-telling, games, singing, dancing, drawing, painting and modelling to increase children's understanding of their physical and social environment, stimulate and develop their interests and aptitudes, develop their self-confidence, encourage them in self-expression, foster their co-operative social behaviour and promote their healthy physical development; trains children in cleanliness, obedience, patience, tolerance and other elements of social behaviour; evaluates and discusses children's progress with parents.

1-34.90 Other Pre-Primary Education Teachers.

This group includes pre-primary education teachers not elsewhere classified, for example those who organise group and individual activities such as group singing, games, drawing and simple handwork and supervise meal and rest periods in nursery schools for children of pre-kindergarten age.

1-35 Special Education Teachers

Workers in this unit group educate handicapped persons.

Their functions include:

teaching secondary or primary education subjects to blind or deaf pupils, using braille, lip reading and other special aids;

teaching basic academic subjects to mentally handicapped children;

teaching physically handicapped children other than the blind and deaf.

1-35.20 Teacher of the Blind.

Teaches secondary or primary education subjects to blind pupils, using braille:

performs tasks similar to those of *Secondary* or *Primary education teachers* (unit groups 1-32 and 1-33), but specialises in teaching blind pupils and adapts curriculum accordingly; instructs pupils in reading and writing braille.

1-35.30 Teacher of the Deaf.

Teaches secondary or primary education subjects to deaf pupils, using lip reading and other special aids:

performs tasks similar to those of *Secondary* or *Primary education teachers* (unit groups 1-32 and 1-33), but specialises in teaching deaf pupils and adapts curriculum accordingly; instructs pupils in lip reading and formation and development of sounds for speech.

1-35.40 Teacher of the Mentally Handicapped.

Teaches basic academic subjects to mentally handicapped children:

performs tasks similar to those of *Primary* and *Pre-primary education teachers* (unit groups 1-33 and 1-34), but specialises in teaching mentally handicapped children and adapts curriculum accordingly; determines each pupil's academic level and learning potential and plans individual courses of study accordingly.

1-35.90 Other Special Education Teachers.

This group includes special education teachers not elsewhere classified, for example those who specialise in teaching physically handicapped children, other than the blind and deaf.

1-39 Teachers Not Elsewhere Classified

Workers in this unit group perform teaching and related functions not classified elsewhere.

Their functions include:

carrying out research on current developments in curricula, teaching methods and other educational practices, and advising introduction of improvements in education system;

conducting research on audio-visual and other teaching aids, advising on and organising their introduction in schools;

planning, organising and co-ordinating educational programme, teaching activities and auxiliary services in a particular school;

carrying out periodic inspections of teachers' work and results achieved in application of curriculum programme of education system;

teaching juvenile delinquents remanded to establishments for corrective training;

performing other teaching and related functions.

1-39.20 Education Methods Adviser.

Studies curricula, teaching methods and other educational practices and advises on introduction of improvements:

investigates the effectiveness of established educational practices and carries out research on current developments in teaching practices, methods and curricula; prepares reports and makes recommendations to education authorities concerning introduction of improved methods and procedures and revisions in curricula; examines teaching methods and curricula in particular educational establishments, recommends improvements or new methods and advises the establishment during their introduction.

May organise and direct in-service training seminars or special readaptation courses for teachers.

1-39.30 Audio-Visual and Other Teaching Aid Specialist.

Conducts research into audio-visual and other teaching aids and advises on, plans and organises their introduction in educational establishments:

conducts research to develop audio-visual teaching methods and equipment and to determine effectiveness of current practices; reviews and evaluates films, records, tapes, programmed learning systems and other available audio-visual and related teaching aids; recommends to education authorities the introduction of appropriate audio-visual methods and equipment and other teaching aids, and plans and organises their introduction in schools and other educational establishments.

May assist in preparation of radio and television broadcasts for schools and students at home.

1-39.40 Head Teacher.

Plans, organises and co-ordinates educational curriculum, activities of teaching staff, and clerical and auxiliary services in a school:

determines school educational programme, within limitations set by education authorities; plans, organises and directs activities of teachers in school and co-ordinates teaching programme through meetings with staff; directs or personally executes administrative and clerical activities concerning pupil admissions, provision of supplies and equipment, school meal service, pupil transport service and other auxiliary services; establishes and maintains relationships with other educational establishments, health, welfare and employment services and other organisations; maintains standards of pupil discipline, cleanliness and general behaviour in school; discusses progress and problems of individual pupils with parents and teachers and recommends desirable action.

Frequently also teaches one or more academic subjects.

1-39.50 School Inspector.

Reviews and examines teachers' work and results achieved in application of curriculum programme of education system:

inspects schools periodically, confers with administrative and teaching staff on questions relating to curriculum, teaching equipment and other matters; visits classrooms to observe teaching techniques and to evaluate teacher performance and scholastic results obtained; makes reports and recommendations to education authorities regarding improvement of teaching techniques, needs for in-service training of teaching staff, revision of curriculum content and related matters.

May organise and conduct demonstrations and lectures to train teachers in new techniques and use of new equipment. May inspect teaching work in a particular subject field, such as modern languages, science or mathematics and be designated accordingly.

1-39.90 Other Teachers.

This group includes teachers not elsewhere classified, for example those who teach children remanded to establishments for corrective training; those who specialise in visiting homes to assist schoolchildren who have scholastic, behavioural or personality problems and working out with children, parents and teachers ways for overcoming difficulties; and those performing educational therapy work, in collaboration with rehabilitation teams, for patients in hospitals and clinics.

1-4 WORKERS IN RELIGION

Workers in this minor group minister religion, give spiritual guidance, propagate religious doctrines, perform a variety of other functions associated with the propagation and practice of religions, and endeavour to cure human ailments by the power of faith. They are classified in the unit groups listed below:

1-41 Ministers of Religion and Related Members of Religious Orders.

1-49 Workers in Religion Not Elsewhere Classified.

1-41 Ministers of Religion and Related Members of Religious Orders

Workers in this unit group minister religion to members of their faith and seek to propagate religious doctrines.

Their functions include:

conducting religious worship, administering the rites of a religious faith or denomination and providing spiritual and moral guidance to the members;

propagating religious doctrines in their own or foreign countries;

performing other functions associated with the propagation and practice of religions.

Members of religious bodies who mainly perform non-religious functions, such as nursing or teaching, are classified elsewhere, for example among *Professional nurses* (0-71) or *Teachers* (1-3), as appropriate.

1-41.20 Minister of Religion.

Conducts religious worship, administers rites of faith or denomination and provides spiritual and moral guidance to members:

leads congregation in worship and prepares and delivers sermons interpreting doctrines of faith and providing spiritual and moral guidance; administers rites of faith or denomination, such as baptism, confirmation and communion, and conducts marriage and funeral services; visits church members, especially the sick and aged, and provides comfort and spiritual and moral guidance; directs and supervises religious education of church members and instructs persons wishing to join the faith.

May serve as minister of religion in prisons, hospitals, on board ship, in industry or in armed forces.

1-41.30 Missionary.

Works to propagate a religious doctrine in own or foreign country:

establishes churches and meeting places; conducts religious services and preaches sermons, and otherwise endeavours to persuade people to accept and follow his spiritual guidance; prepares candidates for acceptance by the religious body.

May be an ordained minister of religion. May provide some medical, nursing, educational or welfare services, in addition to working in religion.

1-41.40 Religious Worker (Member of Religious Order).

Participates as member of a religious order in various religious activities and assists members of the clergy:

visits members of the religion, especially the sick and aged, ascertains their needs and provides minor welfare services for them; organises and conducts religious meetings; gives religious instruction and prepares candidates for acceptance by religious body; assists ordained members of clergy in religious ceremonies.

May preach religion. May promote social activities and act as part-time youth leader.

1-41.90 Other Ministers of Religion and Related Members of Religious Orders.

This group includes ministers of religion and related members of religious orders not elsewhere classified, for example those attached to a central body which formulates and co-ordinates religious practices, activities and teachings.

1-49 Workers in Religion Not Elsewhere Classified

Workers in this unit group perform religious functions not performed by those classified elsewhere.

Their functions include:

performing, as laymen (not members of religious orders), various functions to assist religious leaders such as assisting in religious rites and ceremonial, conducting religious meetings, propagating doctrine and instructing children or other candidates for admittance to a particular faith;

carrying out research and study on theological questions.

1-49.20 Faith Healer.

Endeavours to cure human mental and physical ailments by power of faith:

gives spiritual advice and consolation, prays by bedside of sick persons and otherwise endeavours to strengthen their faith in recovery from diseases, disorders or injuries without the aid of drugs, surgery or other medical treatment.

1-49.90 Other Workers in Religion.

This group includes other workers in religion, for example those who, as laymen (not members of religious orders), perform various functions to assist religious leaders such as assisting in religious rites and ceremonial, conducting religious meetings, propagating doctrine and instructing children or other candidates for admittance to a particular faith; carry out research and study on theological questions; or perform other religious functions not elsewhere classified.

1-5 AUTHORS, JOURNALISTS AND RELATED WRITERS

Workers in this minor group write literary works for publication or dramatic presentation, write critiques of literary, artistic and musical works and of musical, dramatic and other artistic performances, and compose other written material to inform, entertain or influence the public. They are classified in the unit groups listed below:

1-51 Authors and Critics.

1-59 Authors, Journalists and Related Writers Not Elsewhere Classified.

1-51 Authors and Critics

Workers in this unit group write literary works for publication or dramatic presentation and appraise the merits of literary, artistic and musical works and of musical, dramatic and other artistic performances and write critiques for publication.

1-51.20 Author.

Writes literary works for publication or dramatic presentation:

determines subject-matter for novel, biography, poem, play or other literary composition; conducts research into subject to establish factual content, assemble background material and obtain other necessary data; plans work and organises material; composes manuscript; revises work, ensuring coherence of style, eliminating errors and finishing it for printing.

May specialise in a particular form of writing and be designated accordingly.

1-51.30 Critic.

Appraises merits of literary, artistic and musical works and of musical, dramatic and other artistic performances and writes critiques for publication:

reads written works, attends art exhibitions and stage, screen and other performances, and listens to radio performances; forms personal opinion and writes criticism for publication in newspapers and magazines or for broadcasting, discussing quality of expression, technique and other pertinent factors.

May specialise in particular art form and be designated accordingly.

1-59 Authors, Journalists and Related Writers Not Elsewhere Classified

Workers in this unit group compose written material to inform, entertain or influence the public.

Their functions include:

collecting, reporting and writing commentary on news and current affairs for publication or broadcasting;

selecting, revising and arranging material for publication in newspapers and periodicals;

assisting with editing of newspapers, magazines, trade journals and similar publications or specialised sections thereof;

directing and supervising writers preparing programmes, continuity and scripts for screenplays and television and radio broadcasts;

writing advertising copy;

selecting, assembling and preparing publicity material for issue through press, radio, television and other media;

designing and writing manuals, brochures, handbooks and similar technical publications;

performing various related functions.

1-59.15 Journalist.

Collects, reports and comments on news and current affairs for publication in newspapers and periodicals or broadcasting by radio or television:

interviews persons, attends public functions and seeks information from other sources concerning his subject of interest; writes reports and commentaries, interpreting the facts to give a personal assessment of their causes, consequences and likely implications; submits material to editorial department for approval and preparation for publication in newspaper or magazine or for broadcasting; usually specialises in a particular field of affairs.

1-59.20 Editor, Newspapers and Periodicals.

Selects, revises and arranges material for publication in newspapers and periodicals:

allots assignments to reporters, correspondents and photographers; appraises reports, commentaries and photographs submitted and selects them for publication; assigns writing of editorials and leading articles to specialist writers; examines material for conformity with established policy and literary standards of publisher and revises it as necessary; decides spacing and positioning of items to be included, writes headlines and instructs printer concerning kinds of type to be used.

May write articles or columns. May specialise in particular field and be designated accordingly.

1-59.25 Sub-Editor, Newspapers and Periodicals.

Assists with editing of newspapers, magazines, trade journals and other publications:

edits copy for spelling, punctuation, grammar and continuity; verifies factual content of articles using standard reference sources; rewrites articles for greater consistency, clarity and adherence to space limitations; prepares layout of pages showing position and sizes of illustrations; reads unsolicited manuscripts and selects those for review by editor; drafts headlines and captions; replies to correspondence relating to publication matters.

1-59.30 Reporter.

Seeks and reports information of interest to public for publication in newspapers:

travels to scene of assignment, such as a reported crime, a trial, a fire, an accident, an important public function, a sports meeting or a fashion show; collects all available information concerning assignment by observation, interview and investigation, seeking especially information on aspects of subject likely to interest newspaper readers; writes reports based on information collected and submits them to editorial department for approval and preparation for publication.

May submit reports by telephone or telegraph. May specialise in particular type of news and be designated accordingly.

1-59.35 Radio and Television Journalist.

Collects reports and comments on news and current affairs for broadcasting over radio or television:

performs tasks similar to those of *Journalist (1-59.15)* but specialises in preparing and broadcasting reports and commentaries over radio and television; conducts "live" interviews with persons knowledgeable on or involved in events of current interest.

May specialise in particular type of news or in particular medium and be designated accordingly. May provide extempore commentary on important public events, such as state occasions, for broadcasting by radio and television.

1-59.40 Continuity and Script Editor.

Directs and co-ordinates work of writers preparing programmes, continuity and scripts for motion picture plays and television and radio broadcasts:

assigns programmes and scripts to staff and free-lance writers and discusses requirements; edits finished material to ensure conformity with production requirements, company policy, national laws and local regulations.

May supervise research staff and those examining suggested programmes and scripts.

1-59.45 Book Editor.

Appraises manuscripts submitted for publication in book form, makes recommendations thereon and edits or supervises editing of the material:

reviews and evaluates manuscripts of novels, biographies, collections of short stories, essays and poems, encyclopaedias, textbooks and other books submitted by authors and literary agents; makes recommendations to publisher regarding acceptability of material for publication and conditions of publication contract; proposes rearrangement, reduction or revision of manuscript where necessary and negotiates with author; frequently edits material for coherence of style and punctuation and otherwise prepares it for publication.

May negotiate with authors concerning contracts for future writing.

1-59.50 Advertising Copywriter.

Writes advertising copy extolling merits of particular products or services:

confers with colleagues and client to determine type and style of advertisement and media of presentation; studies product or service to ascertain principal selling points; prepares copy, obtaining desired effect by skilful use of words, and submits for approval.

May specialise in particular medium such as posters, the press, radio or television. May prepare pamphlets, leaflets or brochures.

1-59.55 Public Relations Officer.

Plans and conducts public relations programmes on behalf of business or other organisations:

plans and conducts public relations programmes and explains requirements and assigns tasks to own or free-lance publicity writers; arranges associated photography or obtains photographic or other illustrative material; appraises and, as necessary, revises material submitted by publicity writers, photographers, illustrators and others and selects for publication and display material, photographs and illustrations judged likely to create most favourable publicity; represents employer or client in dealings with press, radio, television and other publicity media, attends business meetings and social and other functions, and uses skill in public relations techniques to obtain desired publicity; organises special exhibitions, competitions and social functions to promote goodwill and favourable publicity.

Public relations manager is classified in 2-19.90.

1-59.60 Publicity Writer.

Selects, assembles and prepares publicity material about business or other organisations for issue through press, radio, television and other media:

confers with principal to establish nature of publicity and style of presentation required; examines available records, reports, articles, photographs and other material and selects items most suitable for publicity purposes; writes press notices and prepares background notes for information of and use by journalists in news reports and feature articles.

May establish and maintain relations with press and other publicity media to promote favourable publicity. May deal with written inquiries from general public and receive non-business visitors.

1-59.65 Technical Writer.

Designs and writes manuals, brochures, handbooks and similar technical publications:

examines pertinent information available in documentary form; studies information provided by professional, scientific and technical personnel, such as technical data concerning installation, operation, maintenance and repair of specialised equipment, and consults specialists as necessary to clarify own understanding; designs and writes manual, brochure, handbook or similar technical publication in form readily intelligible to intended readers; directs preparation of photographs, technical drawings, sketches and other illustrative material; submits draft manual for technical comment and makes corrections where necessary.

May specialise in particular technical subject such as electronics.

1-59.90 Other Authors, Journalists and Related Writers.

This group includes journalists and related writers not elsewhere classified, for example those who compile and write material for encyclopaedias; write words for musical works; write scripts for television and radio productions; adapt plays for broadcasting or filming; or specialise in providing extempore commentaries on events of public interest, such as sports meetings, for broadcasting over radio or television.

1-6 SCULPTORS, PAINTERS, PHOTOGRAPHERS AND RELATED CREATIVE ARTISTS

Workers in this minor group create and execute artistic works by sculpturing, painting, drawing, engraving and etching, apply artistic media to illustrative, decorative and sales promotion purposes, take photographs and direct and operate motion picture and television cameras. They are classified in the unit groups listed below:

1-61 Sculptors, Painters and Related Artists.
1-62 Commercial Artists and Designers.
1-63 Photographers and Cameramen.

1-61 Sculptors, Painters and Related Artists

Workers in this unit group create and execute artistic works by sculpturing, painting, drawing, engraving and etching.

Their functions include:

creating three-dimensional decorative and representational forms by shaping materials such as wood, stone, clay or metal;

creating pictures, abstract designs and similar artistic compositions employing paints, pencils, pastels, ink or other media;

drawing caricatures and creating cartoons to depict persons and events;

creating original designs and engraving or etching them on metal, wood or other materials for reproduction;

restoring damaged, soiled and faded paintings;

performing related artistic functions.

Workers who perform operations on a repetitive basis for large-scale production such as carving wood, stone and other material, or engraving, etching and painting glass and ceramics, are classified in major group 7/8/9, e.g. *Wood carver (8-19.45)*, *Stone carver (hand) (8-20.70)*, *Glass engravers and etchers (8-94)* and *Glass and ceramics painters and decorators (8-95)*.

1-61.20 Sculptor.

Creates three-dimensional decorative and representational forms by shaping materials such as wood, stone, clay or metal:

conceives design for sculpture and decides material to be used; selects material of suitable proportions, quality and texture; carves or otherwise shapes material to desired form using appropriate tools and equipment.

May sketch design of proposed sculpture. May make scale model in wax or plaster as guide and use measurements of model to mark guide points for shaping final material. May make moulds in preparation for casting sculptures in metal.

1-61.30 Painter, Artist.

Creates pictures, abstract designs and similar artistic compositions employing various media and techniques:

conceives pictures or design and selects medium, such as oil or water colours, pencil, pastels or ink, in which work is to be executed; sketches preliminary outline of composition on paper, canvas, wood panel or other chosen surface; applies chosen medium using appropriate techniques to obtain desired effect.

May protect finished work by applying fixative or preservative. May specialise in particular medium, technique, style or subject-matter and be designated accordingly.

1-61.40 Cartoonist.

Creates cartoons to depict persons and events, often in caricature:

determines subject-matter, such as illustration of a story by means of a sequence of drawings, or satirical or humorous portrayal of a current political or social event; sketches cartoon in pencil on cardboard or paper and completes shading and colouring using pen and brush.

May prepare captions for cartoons. May draw cartoons for motion pictures. May specialise in particular type of cartoon and be designated accordingly.

1-61.50 Engraver and Etcher (Artistic).

Creates original designs and engraves or etches them on metal, wood or other materials for reproduction:

for engraving, draws design on plate or block using ink or soft crayon, and uses graving tools and follows lines of drawing to cut design on plate or block; for etching, cleans surface of plate, prepares acid-resistant compound, coats plate with and cuts design through compound exposing parts of plate to be etched, immerses plate in acid solution to corrode exposed parts, removes and washes plate, and repeats etching process, coating parts of design when they are sufficiently corroded, until desired result is achieved; takes trial impressions and corrects engraving or etching as necessary; makes impressions of finished engraving or etching using hand press.

1-61.60 Painting Restorer.

Restores damaged, soiled and faded paintings:

examines condition of painting using chemical, electrical and magnifying devices to determine nature of restoration required and such factors as reaction of original paints to chemical solvents used in restoration; removes painting from frame, backing or other support and relines it, applying special glue, gauze, canvas or other backing to reverse side; irons and stretches relined painting; removes accretions, discolourations and deteriorated varnish from painting using chemical solvents; reconstructs damaged and retouches faded paintings using knowledge of painting styles, techniques and materials; applies coat of protective varnish or other preservative.

May remount extensively damaged paintings on wood or metal supports using special adhesives.

1-61.90 Other Sculptors, Painters and Related Artists.

This group includes sculptors, painters and related artists not elsewhere classified, for example those who paint miniatures from portraits; create original designs for jewellery; create *objets d'art* in glass or ceramics; and repair *objets d'art* using same techniques as employed in their original creation.

1-62 Commercial Artists and Designers

Workers in this unit group apply artistic media to illustrative, decorative and sales promotion purposes.

Their functions include:

creating and executing illustrations and designs for books, magazines, advertising and similar purposes;

designing interior decoration and planning furnishing of homes, public buildings, ships and other places;

creating designs for industrial and commercial products, harmonising aesthetic considerations with technical and other requirements;

creating and executing artistic effects for use in show windows and other places of display;

performing various related functions.

1-62.20 Commercial Artist.

Creates and executes illustrations and designs for books, magazines, advertising and similar purposes:

studies general requirements and confers with colleagues and clients to determine style of illustrations, space limitations and similar considerations; makes detailed study of subjects requiring illustrations or designs, such as children's stories, fashion articles, book jackets, posters or packaging materials; formulates appropriate illustrations or designs and submits sketches for approval; executes approved work in medium most suitable for proposed method of reproduction.

May design lettering for captions, titles, advertisements, special programmes and other purposes. May specialise in a particular field and be designated accordingly.

1-62.30 Interior Decoration Designer.

Designs interior decoration and plans furnishing of homes, public buildings, ships and other places:

studies general requirements and confers with colleagues and client to determine style preferences, space limitations and similar considerations; formulates appropriate designs, prepares sketches and models showing wall decorations, colour schemes and choice and arrangement of furnishings, and submits them for approval; estimates quantities and costs of decorating materials and furnishings required; prepares working specifications and supervises decorating work and installation of furnishings.

May, in collaboration with *Building architect (0-21.20)*, design complete interior layout, fixtures and fittings. May arrange purchase of decorating materials and furnishings required.

1-62.40 Industrial and Commercial Products Designer.

Creates designs for industrial and commercial products, harmonising aesthetic considerations with technical and other requirements:

studies purpose, technical specifications, cost limitations, available materials and methods of production, preferences of potential users and other factors influencing design of products such as furniture, clothing, textiles, pottery, domestic appliances, vehicles and packaging containers; formulates design, endeavouring to achieve a pleasing over-all appearance compatible with technical, utilitarian and cost requirements; prepares sketches showing style, shape, size and ornamentation of product and submits them for approval; makes alterations to designs as required by management or client.

May make technical drawings, models or patterns of products for guidance of production engineers and craftsmen. May specialise in design of particular type of product and be designated accordingly.

Garment patternmaker is classified in 7-94.20 and *Shoe patternmaker* in 8-02.15.

1-62.50 Display Artist.

Creates and executes artistic effects for use in show windows and other places of display:

plans displays for shop windows, exhibitions and other places having regard to subject-matter, space and cost limitations and other considerations; prepares sketch or model showing layout, colour schemes and other features and submits it for approval; designs and paints set pieces, fixtures and posters, prepares working drawings and supervises construction of fixtures and assembly of display material.

May arrange hire or purchase of necessary items or materials. May specialise in particular type of display design and be designated accordingly.

1-62.90 Other Commercial Artists and Designers.

This group includes commercial artists and designers not elsewhere classified, for example those designing and painting stage scenery; designing armorial bearings; and tattooing decorative designs on clients' skins.

1-63 Photographers and Cameramen

Workers in this unit group take photographs and direct and operate motion picture and television cameras.

Their functions include:

taking portrait photographs of persons;

taking photographs for commercial and industrial purposes;

taking photographs to illustrate stories and articles for publication in newspapers, magazines and similar journals;

planning and directing camera work for making motion pictures;

setting and operating motion picture, television, microscopic, aerial photography and other specialised cameras.

1-63.10 Photographer, General.

Takes photographs of persons, places, merchandise and other subjects:

consults client or management to determine subject, type and style of photograph required and other relevant information; as necessary, selects or arranges suitable background setting, positions subject and "props" and arranges lighting to obtain desired effect; sets and positions camera, adjusting focus, shutter speed and other variable controls as required; operates shutter to expose photographic film or plate.

May develop negatives and make prints. May retouch negatives and prints.

1-63.20 Portrait Photographer.

Takes portrait photographs of persons:

performs tasks similar to those of *Photographer (general) (1-63.10)* but specialises in portrait photography, paying special attention to lighting and posing of subject in order to distinguish features and create effect desired.

May take photographs at social functions.

1-63.30 Photographer, Commercial Illustrator.

Takes photographs for commercial and industrial purposes such as advertising and publicity:

performs tasks similar to those of *Photographer (general) (1-63.10)* but specialises in taking photographs of merchandise, industrial products, machinery, persons, buildings and other subjects for use in advertising, public relations, illustration of instruction manuals and for other commercial and industrial purposes.

May specialise in particular field such as ladies' fashions or industrial products, and be designated accordingly.

1-63.40 News Photographer.

Takes photographs to illustrate stories and articles for publication in newspapers, magazines and similar journals:

performs tasks similar to those of *Photographer (general) (1-63.10)* but specialises in travelling on assignments to photograph people and events of current public interest.

May specialise in particular field of news, such as sports, and be designated accordingly.

1-63.50 Director of Photography (Motion Picture).

Plans and directs camera work for making motion pictures:

confers with director of motion picture to ascertain nature of scene to be photographed and type of presentation desired; determines type of photographic equipment required and decides lighting requirements; supervises arrangement of lighting and positioning and setting-up of cameras; directs cameraman during course of filming.

1-63.60 Motion Picture Camera Operator.

Sets and operates motion picture camera to film scenes:

positions camera as instructed by *Director of photography (motion picture) (1-63.50)* and adjusts focus and other settings; operates camera to follow action of scene, adjusting focus as necessary and endeavouring to maintain balance and composition of picture.

1-63.70 Television Camera Operator.

Operates television camera to photograph scenes for broadcasting:

confers with director to ascertain nature of scene to be photographed and type of presentation desired; instructs assistant to position camera and adjusts focus and other camera settings; operates camera to follow action of scene, adjusting focus as necessary and endeavouring to maintain balance and composition of picture and to interpret director's ideas regarding dramatic presentation.

May specialise in studio or outside television photography.

1-63.90 Other Photographers and Cameramen.

This group includes photographers and cameramen not elsewhere classified, for example those who specialise in taking scientific, medical or architectural photographs, photographs to aid the police in crime detection, or aerial photographs.

Medical X-ray technician is classified in 0-77.10.

1-7 COMPOSERS AND PERFORMING ARTISTS

Workers in this minor group compose, adapt, conduct and perform musical works and dances; produce, direct and act in theatrical, motion picture and broadcast productions; perform a variety of amusing, mystifying and spectacular acts for the entertainment of circus and other audiences; and provide other forms of public entertainment. They are classified in the unit groups listed below:

1-71 Composers, Musicians and Singers.
1-72 Choreographers and Dancers.
1-73 Actors and Stage Directors.
1-74 Producers, Performing Arts.
1-75 Circus Performers.
1-79 Performing Artists Not Elsewhere Classified.

1-71 Composers, Musicians and Singers

Workers in this unit group compose and adapt musical works and conduct and participate in performances of them.

Their functions include:

conceiving and writing musical compositions;
adapting or arranging music for particular instrumental groups, instruments or occasions;
conducting instrumental or vocal groups;
playing one or more musical instruments;
singing as soloists or members of vocal groups;
performing related functions.

1-71.20 Composer.

Conceives and writes musical compositions:

creates expression of ideas and emotions in musical form such as symphony, sonata or opera; translates composition into standard musical signs and symbols on scored music paper.

May write words to accompany music. May specialise in particular type of music such as opera, choral works, orchestral works, or compositions for particular instruments.

Writers specialising in writing the words of songs and lyrics for musical works are classified in 1-59.90.

1-71.30 Orchestrator.

Adapts or arranges music to suit particular instrumental groups, instruments or occasions:

determines instruments to be employed, according to occasion of musical performance and musical effects desired; adapts or arranges original musical scores to produce desired musical effects, to suit particular instruments, or to meet requirements and style of particular orchestras, bands, other musical groups or individual musicians.

May write out parts for each musician in group.

1-71.35 Orchestra and Band Conductor.

Conducts instrumental groups such as orchestras and bands:

auditions and recruits members of group; positions musicians in group so as to obtain balance and harmony of instruments; selects musical compositions to be rendered and arranges programme; conducts rehearsals, instructing instrumentalists concerning rendition required and endeavouring to make most of each instrumentalist's talents; conducts public performance, controlling such factors as balance, rhythm, tempo and entries of particular instruments, to create effect consistent with own interpretation of composition.

May adapt or arrange compositions to suit requirements or style of group. May be designated according to type of group conducted.

1-71.40 Instrumentalist.

Plays one or more musical instruments as soloist, accompanist or member of instrumental group:

studies and rehearses musical scores, tuning instrument as necessary and, if soloist, develops interpretation of composition, or, if accompanist or member of group, endeavours to render part as directed by conductor; plays instrument at public performances and, if soloist, endeavours to produce rendition consistent with own interpretation of composition, or, if accompanist or member of group, endeavours to render part as directed and watches conductor for signals concerning such factors as rhythm, tempo, volume and entries; normally specialises in particular instrument and is designated accordingly.

May compose, improvise, transpose or arrange music.

1-71.45 Singer.

Sings as soloist or member of vocal group:

studies and rehearses musical score, learns lines of composition and, if soloist, develops interpretation of composition, or, if member of group, endeavours to render part as directed by conductor; sings at public performances and, if soloist, endeavours to produce rendition consistent with own interpretation of composition, or, if member of group, endeavours to render part as directed and watches conductor for signals concerning such factors as rhythm, tempo, volume and entries.

May also act, dance or play a musical instrument. May be designated according to voice range or type of singing.

1-71.50 Vocal Group Conductor.

Conducts vocal groups such as choirs and choruses:

performs tasks similar to those of *Orchestra and band conductor (1-71.35)* but trains and conducts groups of singers instead of musicians.

1-71.90 Other Composers, Musicians and Singers.

This group includes composers, musicians and singers not elsewhere classified, for example those who select and arrange programmes of music for stage, film or broadcast productions.

1-72 Choreographers and Dancers

Workers in this unit group compose and perform dances.

Their functions include:

creating dances for ballet, musical shows, revues and other purposes and instructing dancers in their performance;

performing dances as a soloist, with a partner or as a member of a dancing group.

1-72.20 Choreographer.

Creates dances and instructs dancers in their performance:

studies musical scores, story or theme of production and other relevant factors, and consults with composer and scenic designer concerning interpretation required; creates dances to harmonise with music and express emotions or illustrate unfolding of story; plans and writes down required movements of dancers using standard notation symbols; conducts rehearsals of dances, demonstrating movements required and instructing dancers in desired interpretation.

May specialise in ballet, dances for musical shows or revues or other particular type of dancing. May perform dances. May plan and arrange movements of performers and "extras" in pageants or other outdoor spectacles.

1-72.30 Dancer.

Performs dances as soloist, with partner or as member of dancing group:

performs regular dance exercises to maintain required physical condition of body and limbs and control of movements; rehearses dances under direction and instruction of choreographer or to develop own interpretation; dances at public performances, endeavouring to interpret the dance as developed or instructed in rehearsal.

May specialise in particular type of dancing and be designated accordingly. May compose own dances. May also sing or play a musical instrument.

1-73 Actors and Stage Directors

Workers in this unit group direct and act in theatrical and film productions and tell stories.

Their functions include:

playing parts in dramatic productions;

interpreting dramatic presentations and directing rehearsals of plays or other productions for the stage, radio, television or cinema;

telling stories and reading literary works aloud to educate and entertain listeners;

performing related functions.

1-73.20 Actor.

Plays parts in dramatic productions:

studies play, learns lines and cues and rehearses part, interpreting role by speech and gesture as instructed by *Stage director (1-73.30)*; acts part in public performances of play, endeavouring to interpret role as developed in rehearsals.

May specialise in particular type of part and be designated accordingly. May specialise in particular medium of presentation such as theatre, cinema, television or radio. May also sing and dance.

1-73.30 Stage Director.

Interprets presentation and directs rehearsals of theatrical productions:

confers with appropriate specialists to develop suitable scenery designs, sound and lighting effects, costumes and choreography; assists *Theatrical producer (1-74.20)* in conduct of auditions and selection of cast and technical personnel; directs rehearsals, instructing actors in interpretation of their parts and co-ordinating activities of sound and lighting technicians, property men and other personnel.

1-73.40 Motion Picture, Radio and Television Director.

Interprets presentation, conducts rehearsals and directs filming of motion pictures, or broadcasting of performances by radio and television:

performs tasks similar to those of *Stage director (1-73.30)* but specialises in making motion pictures or in radio and television broadcasting, and directs cast, cameramen and other technicians during filming or from control room during broadcasting.

May specialise in particular media, or type of film or programme.

1-73.50 Story-Teller.

Tells stories or reads literary works aloud to educate and entertain listeners:

selects stories and poems suitable for introducing children to literature and tells or reads and explains them; reads novels, plays and poetry, sometimes in serial form, for public entertainment and instruction.

May recite from memory stories and poems based on folklore. May give radio or television broadcasts.

1-73.90 Other Actors and Stage Directors.

This group includes actors and stage directors not elsewhere classified, for example those who impersonate other persons for the amusement of theatre and television audiences.

1-74 Producers, Performing Arts

Workers in this unit group plan, organise and co-ordinate the production of plays and other theatrical presentations, motion pictures and radio and television programmes.

1-74.20 Theatrical Producer.

Plans, organises and co-ordinates production of plays and other theatrical presentations:

considers established material, reads manuscripts of new works and selects those for presentation; arranges financing of production; selects *Stage director (1-73.30)* and technical personnel; conducts audition and selects cast in consultation with stage director; determines treatment and scope of production and establishes operating budgets and production schedules; supervises production and suggests or approves changes in script or presentation.

May also perform functions of *Stage director (1-73.30)*.

1-74.30 Motion Picture Producer.

Plans, organises and co-ordinates production of motion pictures:

performs tasks similar to those of *Theatrical producer (1-74.20)* but specialises in motion picture production, directing adaptation of scripts for filming, reviewing scenes filmed each day and approving final editing of filmed production.

May also perform functions of *Motion picture director (1-73.40)*.

1-74.40 Radio and Television Producer.

Plans, organises and co-ordinates production of radio or television programmes:

considers and selects material and plans programme; determines treatment, scope and scheduling of production and explains general requirements to radio or television director; engages script writers, outlines programme to them and reviews scripts submitted; in consultation with director, selects cast and other personnel, costumes, music, props and equipment; reviews production prior to broadcasting.

May specialise in particular media or type of programme. May also perform functions of *Radio* or *Television director (1-73.40)*.

1-74.90 Other Producers, Performing Arts.

This group includes producers, performing arts, not elsewhere classified, for example those who supervise activities of stage crews and organise backstage activities such as allocation of dressing rooms, call systems, wardrobes, scenery and stage property.

1-75 Circus Performers

Workers in this unit group perform a variety of acts for the entertainment of circus and other audiences.

Their functions include:

performing amusing antics and telling funny stories;

performing tricks of illusion and sleight of hand;

performing difficult and spectacular acrobatics;

performing spectacular gymnastic feats on the high trapeze;

training and performing with animals;

performing feats on the high wire;
performing juggling feats;
performing other circus acts.

1-75.20 Clown.

Performs amusing antics and tricks and tells funny stories to amuse circus audiences:

dresses in traditional clown costume or other bizarre or amusing style; performs amusing antics, acrobatics and tricks; tells funny stories and participates in slapstick comedy sketches, often caricaturing other circus acts, well-known persons or events.

May perform at fêtes, carnivals and other functions.

1-75.30 Magician.

Entertains circus, theatre, television and other audiences by performing tricks of illusion and sleight of hand:

performs conjuring and other tricks of illusion to entertain and mystify audiences; performs tricks with playing cards and other tricks by sleight of hand.

1-75.40 Acrobat.

Entertains circus, theatre, television and other audiences by performing difficult and spectacular acrobatics:

performs feats such as leaping, tumbling, somersaulting, swinging and balancing, using ladders, chairs, spring-boards and other equipment.

May specialise in performing acrobatic feats on horseback or on bicycles. May perform alone or as member of team.

1-75.50 Aerialist.

Entertains circus audiences by performing spectacular gymnastic feats on high trapeze:

performs feats such as balancing, swinging from trapeze to aerial platform or to another trapeze, and somersaulting and flying stunts.

May perform alone or as member of team.

1-75.90 Other Circus Performers.

This group includes circus performers not elsewhere classified, for example those who specialise in training and performing with animals such as lions, tigers, elephants, bears, monkeys or dogs; performing balancing feats on tight-ropes or high wires; and performing juggling feats with balls, pins, plates and other objects.

1-79 Performing Artists Not Elsewhere Classified

Workers in this unit group perform entertainment functions not performed by those classified elsewhere.

Their functions include:

reading news bulletins and making other announcements for broadcasting over radio and television;

introducing performing artists to music-hall, night-club, television and other audiences;

entertaining audiences by imitating bird or animal noises, performing feats of hypnotism or ventriloquism, or operating puppet shows.

1-79.20 Radio and Television Announcer.

Reads news bulletins and makes other announcements for broadcasting over radio and television:

reads prepared news bulletins and makes special announcements; reads advertisements on sponsored programmes; usually specialises in radio or television announcing.

May conduct interviews with persons of interest to the general public. May act as master of ceremonies for certain programmes.

1-79.30 Compère.

Introduces performing artists to music-hall, night-club, television, radio and other audiences:

opens show or programme, introduces artists to audience and generally conducts proceedings; tells jokes, sings, dances, plays musical instrument or otherwise entertains audience between acts.

May arrange for particular tunes to be played at guest's request. May announce arrival of celebrities.

1-79.90 Other Performing Artists.

This group includes performing artists not elsewhere classified, for example those who specialise in entertaining audiences by imitating bird and animal noises; performing feats of hypnotism; operating puppet shows; and performing feats of ventriloquism.

1-8 ATHLETES, SPORTSMEN AND RELATED WORKERS

Workers in this minor group participate for gain in, and regulate the conduct of, public sporting competitions, coach sportsmen in the skills of their sport, instruct persons in the development of their physical fitness and perform various related functions. They are classified in the unit group mentioned below:

1-80 Athletes, Sportsmen and Related Workers.

1-80 Athletes, Sportsmen and Related Workers

Workers in this unit group take part for gain in, and regulate the conduct of, sporting events and train sportsmen.

Their functions include:

participating in public competitive sporting events for gain;

coaching sportsmen to develop their knowledge of, and ability in, their sport;

participating in the regulation of the conduct of sporting competitions;

instructing persons in development and maintenance of their physical fitness by means of gymnastic and other exercises;

performing related tasks.

1-80.20 Professional Sportsman.

Participates in public competitive sporting events for gain:

trains to develop ability in football, golf, tennis, athletics or other sport by physical exercise and regular practice, usually under direction of trainer and coach; takes part in public competitive sports meetings such as football matches, golf tournaments, motor or horse races and athletics meetings; usually specialises in a particular sport and is designated accordingly.

Workers playing chess, bridge, billiards or similar games for gain are classified in 1-80.90.

1-80.30 Sports Coach.

Coaches sportsmen to develop their knowledge, ability and performance in their sport:

observes sportsmen in action, analyses their performance and identifies individual or team weakness; coaches sportsmen, demonstrating and directing practice of techniques required to overcome weaknesses; studies strength of opposition, plans or advises team manager on match strategy and trains sportsmen or team in its execution; usually specialises in a particular sport and is designated accordingly.

Workers teaching chess, bridge and similar games are classified in 1-80.90.

1-80.40 Sports Official.

Participates in regulation of conduct of sporting competitions:

starts competition by blowing whistle, firing starting gun, operating starting gate or giving other signal; regulates progress of competition according to established rules; watches closely for infringements of rules and imposes appropriate penalties on offenders; keeps record of score and time and reports or judges result of competition.

Usually specialises in particular sport and may be designated accordingly.

1-80.50 Physical Trainer.

Instructs students and other persons in development and maintenance of their own physical fitness by means of gymnastic and other exercises:

plans course of physical exercises, including use of gymnastic equipment, to develop and maintain general physical fitness of persons or prepare them for a particular sport; instructs persons in required exercises, demonstrates correct execution, and supervises repetition of exercises.

May give massage and heat or other special treatments for muscular injuries, including treatment during games to injured players.

1-80.90 Other Athletes, Sportsmen and Related Workers.

This group includes athletes, sportsmen and related workers not elsewhere classified, for example those teaching chess, billiards or card games or playing such games for gain.

1-9 PROFESSIONAL, TECHNICAL AND RELATED WORKERS NOT ELSEWHERE CLASSIFIED

Workers in this minor group perform professional and technical functions not performed by those classified elsewhere. They are classified in the unit groups listed below:

1-91 Librarians, Archivists and Curators.
1-92 Sociologists, Anthropologists and Related Scientists.
1-93 Social Workers.
1-94 Personnel and Occupational Specialists.
1-95 Philologists, Translators and Interpreters.
1-99 Other Professional, Technical and Related Workers.

1-91 Librarians, Archivists and Curators

Workers in this unit group organise, develop and maintain libraries, archives, museums and art galleries.

Their functions include:

organising, developing and maintaining systematic collections of books and other recorded material and making them available to library users;

collecting, organising and preserving permanent records and historically valuable documents;

directing and organising museums, art galleries and similar establishments;

performing related tasks.

1-91.20 Librarian.

Organises, develops and maintains systematic collections of books, periodicals and other recorded material and makes them available to library users:

plans and supervises the acquisition, classification, cataloguing, shelving and circulation of library material, and the maintenance of records concerning its issue and return and related matters; publicises library facilities by organising book displays and circulating book lists; recommends appropriate sources of information to inquirers, compiles reference lists and, in reference libraries, assembles the material required; supervises maintenance of books and other material and arranges repair or rebinding as necessary.

May, in smaller libraries, also perform any of the more routine library duties. May make abstracts and summaries of important articles and documents. May specialise in particular type of library such as a children's, technical, music, reference or film library. May advise on library policy.

1-91.30 Archivist.

Collects, organises and preserves records and historically valuable documents:

collects and appraises recorded matter such as government papers, minutes of business meetings, private papers, sound recordings and films, and retains those of historical value; analyses and prepares brief descriptions of contents of retained documents for reference; classifies documents and arranges their safe keeping and preservation; prepares indexes, bibliographies, microfilm copies and other reference aids; arranges photographic or other reproduction to safeguard material in constant demand, poor condition or of great value; assists research workers and others seeking information by making documents available to them and advising them on other sources of information.

May undertake restoration of material in poor condition. May conduct research based on archive material.

1-91.40 Art Gallery and Museum Curator.

Organises, develops and maintains collections of art objects in an art gallery or historical, scientific or other exhibits in a museum:

plans and organises the acquisition, classification, cataloguing and display of art objects or museum exhibits; publicises collections on display and encourages visits for educational and other purposes; develops interchange of exhibits and information with other institutions and loans of exhibits by private owners; co-operates with research workers, allowing access to material not on public display; studies new methods and techniques for preparation and display of exhibits.

May conduct research on new museum acquisitions. May give lectures on art gallery or museum collections.

1-91.90 Other Librarians, Archivists and Curators.

This group includes librarians, archivists and curators not elsewhere classified, for example those who specialise in collecting, appraising, classifying, compiling and indexing information on specific subjects of interest to business or other organisations.

1-92 Sociologists, Anthropologists and Related Scientists

Workers in this unit group conduct research into the origin, development, history and behaviour of man as an individual and as a member of society.

Their functions include:

studying the origin, development, structure, social patterns and interrelationships of human society;

studying human behaviour and mental processes and recommending treatment for psychological problems;

tracing the origin and evolution of man and his cultural and social development;

studying the characteristics of man's physical and climatic environment and the distribution of populations and man's activities;

conducting research into past human activity;

studying the theory, origin, development, operation and interrelationships of political institutions and behaviour.

1-92.20 Sociologist.

Studies origin, development, structure, social patterns and interrelationships of human society:

studies and investigates social phenomena such as the family and the community or sociological aspects of education or of human behaviour in such fields as industrial relations, crime and politics; analyses and interprets data obtained and correlates findings with those of other research in the same and related fields; organises and presents data and conclusions in form suitable for use by government, industry, welfare organisations or other interested bodies.

May devise methods of collection and analysis of sociological data. May specialise in particular branch of sociology and be designated accordingly.

1-92.30 Psychologist.

Studies human behaviour and mental processes and investigates, and recommends treatment for, psychological problems in such fields as medicine, education and industry:

plans and carries out experiments and observations on human beings and animals to measure mental and physical characteristics; analyses effect of heredity, environment and other factors on individual thought and behaviour; undertakes diagnosis, treatment and prevention of emotional and personality disorders and problems of maladjustment to social and occupational environment; develops and administers tests to measure intelligence, abilities, aptitudes, attitudes and other human characteristics, interprets data obtained and makes recommendations as appropriate.

May specialise in particular application of psychology such as diagnosis and treatment of mental abnormalities, psychological problems arising during education and social development of children, or industrial and occupational psychological problems such as those associated with personnel selection, training and vocational guidance.

1-92.40 Anthropologist.

Traces origin and evolution of man through study of changes in his physical characteristics, cultural and social institutions, and living conditions:

compares physical characteristics of fossilised human remains with those of existing racial groups, and classifies fossils according to period, origin and degree of development; studies pre-human fossilised remains to trace evolution of man from lower animals; conducts research into the development of man's cultural, social and economic life, by studying recorded history and material remains of man's past such as pottery, weapons, tools and architecture, taking into account the findings of researchers in related fields and knowledge of existing human societies; applies knowledge of man's cultural, social and economic development to the solution of problems of promoting change among backward peoples.

May plan and conduct field excavations to discover material remains of man's past. May specialise in particular branch of anthropology and be designated accordingly.

1-92.50 Geographer.

Studies characteristics of man's physical and climatic environment, the distribution of populations and human activities on the earth:

conducts research into physical and climatic characteristics of an area or region, making field studies and applying knowledge of related sciences, such as physics, geology, oceanography, meteorology and biology; studies populations and human activities, including ethnic distribution, economic structure and social and political organisation, in particular areas and countries of the world; advises governments and international, industrial and other organisations on such matters as determination of physical and ethnic boundaries between states, economic exploitation of specific areas or regions, potential markets and optimum trade routes.

May construct maps, graphs and charts to illustrate findings. May specialise in particular branch of geography and be designated accordingly.

1-92.60 Historian.

Conducts research into one or more phases or aspects of past human activity:

consults available sources such as original records in archives and libraries, private diaries and newspaper files and studies works of other historians and of related researchers such as archaeologists; extracts, authenticates and evaluates relevant information, draws conclusions and presents findings in written or other form; usually specialises in history of particular area, country or period or in particular aspect of history such as economic, social or political history, and is designated accordingly.

May act as adviser or consultant and perform research for individuals, institutions or commercial organisations on such subjects as technological evolution within an industry or social manners and customs of a particular period.

Archivist is classified in 1-91.30.

1-92.70 Political Scientist.

Conducts research into theory, origin, development, operation and interrelationships of political institutions, movements and behaviour:

pursues research in such fields as political philosophy, theory and practice of political systems and institutions, public administration, political party systems, development of public opinion, international relations and relations of government and business; consults original sources, studies works of other political scientists and related researchers such as philosophers, historians and sociologists, observes working of contemporary political institutions and practices, discusses subject of research with politicians, government officials, officers of political parties, lawyers and other relevant persons, and in other ways assembles research data; analyses and interprets research data and presents findings and conclusions in form suitable for publication or use by government, political parties or other organisations.

May plan and direct public opinion surveys and interpret results. May specialise in particular area of politics and be designated accordingly.

1-92.90 Other Sociologists, Anthropologists and Related Scientists.

This group includes sociologists, anthropologists and related scientists not elsewhere classified, for example those who trace the genealogical background of particular families.

1-93 Social Workers

Workers in this unit group supervise and provide social services to meet the needs of persons in a community.

Their functions include:

helping individuals and families with their personal and social problems;

organising and supervising social, recreational and educational activities in youth clubs, community centres and similar organisations;

working to prevent development of juvenile delinquency or to achieve social and moral rehabilitation of juvenile and adult delinquents;

helping the mentally ill to submit and respond to psychiatric treatment and to cope with their personal and social problems;

preventing cruelty to children;

helping the physically handicapped to adjust to their disabilities;

planning and organising home-help services.

1-93.10 Social Worker, General.

Helps individuals and families to understand and resolve their personal and social problems:

interviews clients and investigates nature, extent and causes of their problems, taking account of social, economic, environmental, medical, psychological and other potentially relevant factors; determines type of assistance required, counsels clients and assists them to improve their understanding of their problems and secures their co-operation in coping with them; encourages and promotes development of social and personal adjustment; arranges for provision of appropriate assistance such as financial aid, employment placement, medical treatment, recreational opportunities, housing, or placing in a home; follows progress of client after immediate problems have been overcome; compiles case records and prepares reports as required.

1-93.20 Social Welfare Worker.

Provides advice and assistance to individuals and families to promote their social welfare:

performs tasks similar to those of *Social worker (general) (1-93.10)* but specialises as a rule in social welfare problems of families or of particular categories of persons, such as children, adolescents, unmarried mothers, elderly persons, hospital patients, prison inmates or employees of a particular firm or other organisation.

May provide social welfare service for children or old people in a school or special residential establishment and be designated accordingly.

1-93.30 Culture Centre Worker.

Organises and supervises social, recreational and educational activities in youth clubs, community centres and similar organisations:

organises activities such as games, dances, plays, talks, discussions, debates, outings and non-academic classes in subjects such as art, languages, politics and handicrafts; endeavours to widen interests of members and stimulate participation in group activities, encouraging members to share responsibility for their organisation; co-operates with social workers, parents, teachers, employers, education authorities and other persons and organisations concerned with youth club and community centre activities and with the welfare problems of individual members.

1-93.40 Social Worker, Delinquency.

Works to prevent development of juvenile delinquency or to achieve social and moral rehabilitation of juvenile and adult delinquents:

works among young people to prevent juvenile delinquency, advising community authorities on development of adequate recreational and other facilities for youth, promoting group activities among youth, providing guidance to potential delinquents and enlisting aid of other specialised welfare services as necessary; supervises and controls young delinquents in corrective establishments, helping them to cope with their personal problems and preparing them for their return to community life through individual and group work and leisure activities designed to promote their social and moral rehabilitation; investigates social background of offenders for information of courts and supervises social and moral rehabilitation of adult and juvenile delinquents placed on probation, or just released from corrective or penal establishments, by regular interviews and assistance with housing, employment and other problems; keeps case records and prepares reports as required.

1-93.50 Psychiatric Social Worker.

Helps the mentally ill and maladjusted to submit and respond to psychiatric treatment and to resolve their personal and social problems, and looks after the welfare of the mentally subnormal:

investigates personal and social backgrounds of adults, adolescents or children suffering from mental disorders or psychological maladjustment to discover factors relevant to diagnosis and treatment; endeavours to solve problems affecting patients' health, such as worries about finances or family difficulties, and enlists aid of other social welfare services as necessary; explains need for and nature of treatment to patient and his family, seeking to overcome prejudices and secure co-operation; assists psychiatrists, psychologists and other specialists by helping patient to respond constructively to treatment; helps patient to readjust to family and community life and arranges for assistance of other welfare agencies such as employment and housing services; visits mentally subnormal persons in the community and arranges welfare services for them; keeps case records and prepares reports as required.

1-93.90 Other Social Workers.

This group includes social workers not elsewhere classified, for example those who specialise in the prevention of cruelty to children; helping the physically handicapped, the blind and the deaf to adjust to their disabilities and to cope with any associated personal or social problems; or planning and organising a home-help service for persons unable to cope with the running of their own homes.

1-94 Personnel and Occupational Specialists

Workers in this unit group specialise in personnel work, vocational guidance and occupational analysis.

Their functions include:

performing one or more functions in personnel work, such as employee recruitment, placement, or employee-management relations;

advising individuals concerning career choice and development;

analysing occupations to assist personnel, administrative, research, information and other functions of private, public or governmental organisations;

organising and co-ordinating accident prevention within an enterprise.

1-94.20 Personnel Specialist.

Performs personnel functions relating to employee recruitment, placement, training, promotion, compensation, employee-management relations or other areas of personnel work:

ascertains manpower requirements, carrying out job analyses as necessary; arranges staff transfers, advertises vacancies, interviews and tests applicants, selects most suitable candidates and settles terms of employment or submits proposals to employer; plans and organises training of employees; organises employee grievance procedures and negotiates settlements of complaints and disputes; constructs and reviews wage and salary scales; assists in planning and organisation of services such as canteens, first aid, pension schemes and other welfare and recreation facilities for employees; maintains confidential personnel records.

May specialise in particular area of personnel work, such as training, placement or industrial relations, and be designated accordingly.

Personnel manager is classified in 2-19.80.

1-94.30 Vocational Guidance Counsellor.

Advises individuals concerning career choices and development of work qualifications:

interviews applicants to elicit vocationally significant information such as their interests, aptitudes, abilities, academic achievements, work experience and personality characteristics; analyses and evaluates information obtained and formulates appropriate career choice and development advice consistent with maximisation of applicant's potential abilities and personal satisfaction; advises applicant concerning further education and training required, employment opportunities and methods of application.

May apply standard tests of intelligence and aptitudes. May assist applicants in obtaining suitable employment. May specialise in particular class of applicant, such as schoolchildren, university students, adults or disabled persons.

1-94.40 Occupational Analyst.

Analyses occupations to assist personnel, administrative, information and other services of private, public or governmental organisations:

ascertains purpose and determines type and scope of analysis required; studies jobs performed, and interviews workers, supervisors and managerial personnel concerned to ascertain job functions and tasks involved, worker characteristics required and other relevant factors; writes detailed job descriptions and specifications from data obtained; makes comparative analyses of job descriptions, specifications and other occupational data; prepares occupational classification systems, occupational information booklets, interviewing aids for placement officers, job evaluation reports and other aids to the work of industrial, governmental and other organisations in such fields as personnel administration, manpower research and planning, training, occupational information and vocational guidance.

1-94.90 Other Personnel and Occupational Specialists.

This group includes personnel and occupational specialists not elsewhere classified, for example those who specialise in organising and co-ordinating accident prevention programmes and procedures within an industrial organisation.

Workers who specialise in the engineering aspects of industrial accident prevention are classified in unit group 0-28.

1-95 Philologists, Translators and Interpreters

Workers in this unit group study languages and translate matter from one language into another.

Their functions include:

studying the origin, development and structure of languages;

translating recorded verbal matter from one language to another;

interpreting the spoken word from one language into another.

1-95.20 Philologist.

Studies origin, development and structure of languages:

traces origin and evolution of words and their meanings and the grammatical structure of languages through comparative analysis of ancient and modern languages; studies the vocal sounds employed in speech and the ways they are combined in different languages; identifies and classifies obscure languages and reconstructs and deciphers ancient or hitherto unknown languages from traces found, for example in the course of archaeological excavations; compiles language classification systems, dictionaries and other works dealing with the meaning and usage of language; usually specialises in particular branch of philology such as etymology, phonology, lexicology, semantics or morphology, and may be designated accordingly.

1-95.30 Translator.

Translates recorded verbal matter from one language to another:

studies original text to comprehend meaning and converts it into another language, ensuring that original meaning is retained and consulting dictionaries and other reference sources as necessary; ensures that phraseology and terminology of legal, technical or scientific texts are correctly rendered, and endeavours to convey the original spirit and feeling of literary works in translation; usually specialises in one language, or in particular type of subject-matter such as business correspondence, scientific papers, political and legal documents or literary works.

May revise translations to improve them.

1-95.40 Interpreter.

Interprets the spoken word from one language into another:

provides simultaneous spoken translations of speeches into the language of other participants at international conferences, debates and similar proceedings; attends discussions, negotiations and similar meetings and provides consecutive spoken translations of the words of the speakers into the languages of other participants; endeavours to interpret the exact meaning and feeling of what is said.

May specialise in particular subject-matter. May also translate written texts.

1-99 Other Professional, Technical and Related Workers

Workers in this unit group perform professional and technical functions not performed by those classified elsewhere.

Their functions include:

giving technical and legal advice in connection with applications for and granting of patents;

developing, interpreting and applying principles of home economics;

planning, directing and co-ordinating production of advertising campaigns for particular clients of an advertising agency;

reviewing applications for insurance and determining premiums, maximum coverage and other conditions of insurance contracts (underwriting);

making forecasts of future events for clients using either horoscopes or other information professed to provide a basis for intuitive perception of the past and future;

obtaining contracts and negotiating terms for publication of writers' works;

arranging contracts for performing artists and taking care of their business interests.

1-99.20 Patent Agent.

Gives advice concerning patents and assists in preparing applications for patents, or examines applications submitted for registration:

examines drawings, specifications and products to ascertain underlying principles involved; investigates patent rights of similar or related products; as a private agent, prepares technical drawings and specifications in form suitable for patent application and prepares legal wording of rights applied for; as patent examiner, writes reports setting out reasons for or against granting of patent.

May make decisions on applications for patents. May represent client or patent-licensing authority at hearings relating to patent applications or infringements.

Workers concerned solely with the technical aspects of patent work are classified according to their field of technical specialisation.

1-99.30 Home Economist.

Carries out research in home economics and interprets and applies principles of home management to promote health and welfare of families, to develop new consumer goods and to promote consumption of household goods:

advises homemakers on budgeting and other home management problems and instructs them in improved homemaking practices through special classes, demonstrations and home visits; writes articles of interest to homemakers, such as appreciations of new recipes, equipment and household products, conducts radio and television programmes on homemaking, and performs public relations and sales promotion work for manufacturers; advises homemakers in selection and use of household equipment, food and clothing and interprets their needs to manufacturers; participates in research to develop new and improved food products, equipment and materials for the home, and similar projects.

1-99.40 Advertising Account Executive.

Plans, directs and co-ordinates production of advertising campaigns for particular clients of an advertising agency:

confers with client and agency directors to determine broad theme, objectives and budgetary limitations of campaign; confers with heads of media, art, copywriting, layout, space-buying and other agency departments, to explain broad requirements of campaign and establish plan of operations and budget for each department; submits agency's ideas for client's approval at each stage of planning and production and co-ordinates work of agency departments to produce advertising campaign accordingly.

1-99.50 Underwriter.

Reviews applications for insurance, evaluates risks involved and determines the premiums, maximum extent of cover and other conditions to be attached to insurance policies:

fixes company tariffs and provisions regulating routine insurance business and determines terms and conditions of particular insurance contracts; examines completed application form, inspector's report, medical record and other relevant data to determine degree of risk involved; ascertains amount of insurance carried by company, on single risk or group of closely related risks, and evaluates possibility of large losses due to catastrophe or excessive insurance; refuses application where risk is excessive for the company or reinsures (schedules) certain percentage of risk with one or more other companies; decreases proposed policy value or specifies contract endorsement to limit company's obligation when risk is substandard.

Usually specialises in underwriting one type of insurance, such as automobile, fire, life or marine, and is designated accordingly.

1-99.60 Astrologer and Fortune Teller.

Makes forecasts of future events for particular clients or the general public basing predictions either on the positions of stars and planets at specified times or on characteristics of clients' palms, samples of playing cards drawn at random, or other factors:

prepares and interprets personal horoscope, predicts success or failure in specified courses of action by client and recommends propitious dates for pursuit of particular objectives; interprets characteristics of client's palms, positions of tea leaves in client's cup, selection of playing cards drawn at random or other information and signs professed to provide a basis for intuitive perception of past and future events in client's life.

Performers entertaining audiences by mock interpretations of signs in palms, playing cards, crystal balls or other media and by giving demonstrations of professed powers of mental telepathy are classified in 1-79.90.

1-99.90 Other Professional, Technical and Related Workers Not Elsewhere Classified.

This group includes other professional, technical and related workers not elsewhere classified, for example those who act as agents for writers in the obtaining and negotiation of contracts for the publication of their works, or arrange contracts for performing artists and take care of their business interests.

MAJOR GROUP 2

ADMINISTRATIVE AND MANAGERIAL WORKERS

Workers in this major group comprise persons who as elected or appointed members of national, state, provincial or local governments are mainly occupied in deciding or participating in formulating governmental policy and in making and amending laws and official regulations, together with those who, as government administrators, organise and direct the interpretation and execution of governmental policy and those who, as directors and managers, plan, organise, co-ordinate and direct the activities of private or public enterprises, or organisations, or one or more of their departments (*with certain exceptions*: see definition below of minor group 2-1, *Managers*).

They are classified in the minor groups listed below:

2-0 Legislative officials and government administrators.
2-1 Managers.

2-0 LEGISLATIVE OFFICIALS AND GOVERNMENT ADMINISTRATORS

Workers in this minor group decide or participate in formulating governmental policy, make, amend or repeal laws and official regulations and direct the administration of government departments to implement government policy and laws, public rules and regulations. They are elected or appointed and work in national, state, provincial or local governments or intergovernmental organisations. They are classified in the unit groups listed below:

2-01 Legislative Officials.
2-02 Government Administrators.

In accordance with the general principles of I.S.C.O., persons who are occupied only part time as legislative officials and principally engaged in another occupation are classified elsewhere, in the group appropriate to their main occupation.

2-01 Legislative Officials

Workers in this unit group preside over or participate in the proceedings of legislative bodies and administrative councils of national, state, provincial or local governments.

Their functions include:

formulating and deciding on laws, rules and regulations within the framework of a constitution determining their powers and fields of jurisdiction;

serving on government administrative boards or official committees;

directing, on behalf of the government, administrators of departments implementing government policy.

Legislative officials who serve only in a part-time capacity and are principally engaged in another occupation are classified elsewhere, in the group appropriate to their main occupation.

2-01.10 Legislative Official.

Presides over, or takes part in, the activities of a national, state, provincial or local government legislative body or administrative council as an elected or appointed member:

takes part in formulating government policy and in making, amending or repealing laws, ordinances and official regulations; serves on government administrative boards, commissions of inquiry and committees dealing with finance, health, defence, education, employment or other matters; investigates matters of concern to general public, or to particular persons or sections in electorate, and introduces proposals for remedial government action or otherwise endeavours to serve public or electoral interests.

May nominate or appoint heads of government departments and other high-level officials. May preside over meetings of political heads of government departments. May represent government at intergovernmental meetings. May direct high-level administrators in the implementation of government policy. May be designated according to post held or function performed.

2-02 Government Administrators

Workers in this unit group advise governments on policy questions and plan, organise and direct activities of government departments and agencies to implement government policy and laws, rules and regulations.

Their functions include:

participating in forming governmental policy and directing its application by national, state, provincial or local government departments and agencies which deal with subjects such as finance, health, education, justice, labour and public welfare, or performing similar functions in intergovernmental organisations.

Government employees who might sometimes be called "administrative officials" but who do not perform the above-mentioned functions (described in more detail under 2-02.10) are classified elsewhere. Government employees who manage a government-owned or government-controlled industrial, commercial or other business or institution, are also excluded and classified in the same group as managers of similar privately owned establishments (see minor group 2-1). Government employees performing mainly professional or technical functions are classified in major group 0/1. Government executive officials are classified in minor group 3-1. Workers in government employment who are mainly performing clerical duties are classified elsewhere in major group 3, and those engaged as sales, service, transport operating and production workers are classified in major groups 4, 5, 6 and 7/8/9 as appropriate.

2-02.10 Government Administrator.

Plans, organises, directs and controls, subject to a broad mandate from political head or governing body, the activities of a national, state, provincial or local government department (or subdepartment), government administrative agency or intergovernmental organisation (or one of its departments); advises political head or governing body on important policy questions; makes decisions within his broad discretionary power; performs other high-level functions in connection with government administration:

plans, organises, directs and controls the activities of a government department (or one of its subdepartments), or other government administrative agency, or an intergovernmental organisation (or one of its departments); advises political head of government department or governing body on policy questions and refers major policy matters for final decision; consults other administrators and co-ordinates action on questions of mutual concern; interprets government policy directives within his field of reference, issues instructions and ensures that they are carried out by *Government executive officials* (classified in 3-10.10) responsible to him; deputises for superior in carrying out one or more of the above functions; performs functions similar to the above in a regional office of a government department or administrative agency.

May represent country as ambassador, consul-general or permanent delegate to an intergovernmental organisation.

Is commonly designated according to post held.

Government employees mainly occupied in managing government business enterprises and assimilated establishments are classified in minor group 2-1 in the same way as managers of similar private enterprises.

2-1 MANAGERS

Workers in this minor group plan, organise, co-ordinate and direct public and private industrial, commercial, public utility, transport, communications and other undertakings, establishments and organisations (or one or more of their departments). They are classified in the unit groups listed below:

2-11 General Managers.
2-12 Production Managers (except Farm).
2-19 Managers Not Elsewhere Classified.

This minor group includes all workers and working proprietors mainly performing management functions as described in the definitions which follow (see, for example, 2-11.10 and 2-12.10), *with the exception that:*

(a) all managers and working proprietors of wholesale and retail businesses are classified in minor groups 4-0 and 4-1 respectively;

(b) all managers and working proprietors of enterprises operating catering and lodging services are classified in minor groups 5-0 and 5-1 respectively;

(c) all farm managers and farmers are classified in minor groups 6-0 and 6-1 respectively.

Not included in minor group 2-1 are those workers who have the status of working proprietor or who have special titles, including such terms as "chief", "director" or "manager", but who do not principally carry out duties within the scope of the functions of management. In such cases the workers are classified in other major groups, following the principle of classification according to the main type of work performed. Thus, classified in major group 0/1 are those who, with or without the assistance of other workers, principally perform professional or technical functions; and classified in major groups 3 to 7/8/9 are those who, with or without the assistance of other workers, principally perform functions described in the definitions of the various crafts and trades, and personal service, supervisory and other occupations covered by those major groups.

Government administrators who plan, organise and direct activities of government departments and agencies to implement government policy and laws, rules and regulations are classified in unit group 2-02.

2-11 General Managers

Workers in this unit group plan, direct, control and co-ordinate, on proprietors' or on own behalf, the activities of an industrial, commercial, public utility, transport, communication or other enterprise or organisation.

Their functions include:

formulating and determining, within the powers delegated to them by a board of directors or similar governing body, or by official decree, the general policy and programme of the enterprise or organisation;

determining the methods by which the programme should be carried out;

controlling and co-ordinating the activities of the different functional sections of the enterprise or organisation;

conducting or directing negotiations on behalf of the undertaking;

approving senior staff appointments.

General managers and working proprietors of certains types of establishments are specifically excluded from this unit group: see definition of minor group 2-1. *Government administrators* are classified in unit group 2-02.

2-11.10 General Manager.

Plans, organises, directs and controls, on proprietors' or on own behalf, an industrial, commercial or other undertaking, establishment or organisation, and co-ordinates the work of departmental managers or other immediate subordinates:

assesses the existing situation, past performance and projections for the future and determines the programme of the undertaking or organisation; determines how the programme objectives should be achieved, consulting immediate subordinates on such matters as methods of operation, equipment required, finance, sales and personnel; controls the activities of the undertaking or organisation, co-ordinates the operations of functional sections and delegates the detailed implementation of the programme to immediate subordinates; decides general policy questions; represents the undertaking or organisation in negotiations or directs negotiations on its behalf; decides or approves senior staff appointments; reports to proprietors or board of directors as required.

2-12 Production Managers (except Farm)

Workers in this unit group plan, organise, direct and control the activities of the production department of an undertaking.

Their functions include:

participating in formulating production policy;

drawing up production programme of the undertaking according to policy decisions of general manager;

estimating and ensuring provision of the labour, materials and equipment needed;

controlling, through subordinates, the organisation of work and co-ordinating the activities of production department.

Farm managers are classified in minor group 6-0.

2-12.10 Production Manager (except Farm).

Plans, organises and controls the production activities of an undertaking or establishment, ensuring efficient use of equipment, materials and personnel, and participates in formulating the production policy of the undertaking:

assesses production requirements, plant capacity and performance; consults general manager on the production policy of the undertaking or establishment and consults departmental managers about matters relevant to production planning such as financial limits, manpower available, materials supply, marketing and distribution; formulates, with the assistance of subordinates, the production programme, including time and cost estimates, material and personnel requirements; makes decisions regarding plant maintenance and recommendations regarding replacement of equipment; controls through subordinates the organisation of work and co-ordinates the activities of production department; devises procedures for inspecting and reporting production results; reports on production plans, activities and results to general manager as required.

May negotiate with production workers' representatives on questions such as wage-setting and working conditions.

2-19 Managers Not Elsewhere Classified

Workers in this unit group perform managerial functions not elsewhere classified.

Their functions include:

planning, organising, directing and controlling a department (other than the production department) of an undertaking, establishment or organisation, within general policy laid down by directorate or governing body;

participating in formulation of policy concerning a particular department;

drawing up the programme of the department in accordance with policy decisions of general manager;

co-operating with other departments of the organisation;

negotiating with external organisations on questions affecting departmental policy;

reporting to general manager or governing body on work of the department.

2-19.20 Research and Development Manager.

Plans, organises and controls research and development work, in an industrial enterprise or other establishment, relating to such matters as development of new or improved technical processes, new or improved products and utilisation of different materials, and participates in formulating research policy:

assesses the research and development requirements of the enterprise; consults with general manager, departmental managers and others on matters relevant to research planning and participates in formulating research and development policy; plans research programmes and projects, making estimates of time, staff and equipment needed and financial costs; organises and directs the work of the department in accordance with general policy directives; evaluates the methods and progress of current investigations and the significance of results; advises on practical methods of application of results of research and development work; reports to general manager on progress and accomplishments.

2-19.30 Sales Manager (except Wholesale and Retail Trade).

Plans, organises and controls sales activities of an industrial undertaking or other organisation, except a wholesale or retail business, and participates in formulating sales policy:

assesses market potential and evaluates sales record; consults general manager and departmental managers to determine price schedules, discount and delivery terms, staff and sales promotion budgets; plans and organises sales programmes including sales methods, incentives, special campaigns and staff training; controls and co-ordinates the activities of the sales department, consults *Sales supervisors (4-21.90)* about current developments including customer reaction to products for sale, and decides questions concerning sales department activities; reports to general manager on sales activities.

May personally negotiate large sales contracts. May plan, organise and control market research related to sales activities. May negotiate with advertising and similar agencies on the preparation and presentation of the organisation's sales publicity and approve material before publication.

Managers (wholesale and retail trade) are classified in unit group 4-00.

2-19.40 Administration Manager.

Plans, organises and controls the internal administration of an industrial, commercial or other organisation and participates in formulating the administrative policy of the organisation:

assesses the organisation's needs for records, information, communication and other common services; consults general manager and departmental managers on co-ordination of activities and participates in formulating administrative policy; plans and organises the administrative and common services, devises procedures for ensuring the adequacy of information and communication services for departments and initiates studies of organisation and methods, including the use of data-processing equipment; ensures statutory obligations affecting the organisation are observed and furnishes statements and reports on these subjects as required; controls the common services and co-ordinates departmental reporting and record-keeping systems; negotiates with suppliers of business services, insurance, telephone and other services.

May act as secretary to the board of directors or governing body. May, in non-profit-making organisations, have responsibility for maintaining membership records, ensuring that examination and registration regulations are observed, or carrying out similar functions.

Workers sometimes described as "office managers", who are occupied mainly in directly supervising workers in clerical occupations, are classified in unit group 3-00.

2-19.50 Budgeting and Accounting Manager.

Plans, organises and controls, within powers delegated to him, the financial operations of an industrial, commercial or other organisation and participates in formulating the financial policy of the organisation:

assesses the financial situation of the enterprise; estimates receipts and expenditure in relation to the programme and policies of the organisation; consults general manager and departmental managers on financial aspects of production, research and other programmes, presents budget proposals to the governing body or board of directors on behalf of the general manager and advises on general financial questions such as the effective use of resources and financing of capital expenditure; plans and organises budgeting, accounting and expenditure control systems; controls and co-ordinates budgetary and accounting activities and decides questions arising out of the financial operations of the organisation; reports to general manager on budgetary, accounting and other financial matters.

2-19.60 Transport Operations Manager.

Plans, organises and controls operational activities in road, rail, air or water transport and participates in formulating policies to ensure the efficient handling of freight and passenger traffic and the best use of transport equipment;

assesses adequacy of existing transport facilities and time schedules, the organisation of work and the efficiency of use of equipment; consults general manager and other departmental managers about matters relevant to transport planning and participates in formulating transport operating policy; devises or approves methods and procedures for operating freight and passenger services, time schedules and routes; controls and co-ordinates work of transport operations department and decides questions arising out of transport operations of the undertaking; negotiates with other transport undertakings and represents his undertaking in relations with public or other authorities; reports to general manager on transport operational activities.

May participate in fixing passenger and freight rate structures where these are not controlled by governmental body or transport associations. May plan development of passenger and freight services and negotiate with major users. May carry out all or some of these functions within a territorial division and report to appropriate higher authority.

Railway station masters are classified in 3-51.10.

2-19.70 Operations Manager (Postal or Telecommunications Services).

Plans, organises and controls operational activities of a postal or telecommunications service and participates in formulating policy concerning operation and development of the service:

assesses adequacy of existing services, having regard to volume and likely trends in traffic, and the capacity of installed equipment; consults general manager and other departmental managers and formulates operational and development policies; devises or approves methods and procedures for the efficient operation of the service, the maintenance of security and application of regulations; controls and co-ordinates operational activities and decides questions arising out of these activities; reports to general manager on postal or telecommunications operations.

May take part in determining postal and telecommunications rate structures. May carry out all or some of the above functions in respect of a territorial division and report to the central authority on the activities of his area.

Postmasters are classified in 3-52-10.

2-19.80 Industrial Relations and Personnel Manager.

Plans, organises and controls industrial relations and personnel activities of an industrial or commercial undertaking or other organisation and participates in formulating the recruitment, training, wages, safety, welfare and other personnel policies of the undertaking:

assesses personnel resources employed by the undertaking or available in relation to present and future needs; consults general manager and departmental managers on questions such as recruitment, wage scales, use and discharge of personnel and the conduct of negotiations or consultations with workers' representatives; participates in formulating personnel policy; plans and organises procedures for recruitment, training, promotion, safety, health and welfare o personnel, determination of wage structures, communication and consultation with workers, adjustment of grievances and other personnel matters; advises and assists departmental managers on personnel questions; controls and co-ordinates activities of personnel department and decides questions arising out of these activities; advises or assists general manager in negotiations with representatives of workers' organisations or himself negotiates or directs negotiations.

May represent undertaking before industrial arbitration courts or other labour tribunals. May specialise in industrial relations work and be designated accordingly.

2.19.90 Other Managers.

Workers in this group plan, organise, direct and control a department within an undertaking, establishment or organisation, such as departments concerned with the following: buying business and other services or supplies and materials for processing and fabrication; warehouse, bond store or cold store services; pipeline services; advertising, public relations and public information services; investment and loans services; or perform other managerial activities not elsewhere classified.

MAJOR GROUP 3

CLERICAL AND RELATED WORKERS

Workers in this major group put into effect laws, rules and regulations made by central, state, provincial or local governments; supervise clerical and related work, transport and communications service operations; compile and maintain records of financial and other business transactions; handle cash on behalf of an organisation and its customers; record oral or written matter by shorthand writing, typing and other means; operate office machines and telephone and telegraph equipment; conduct passenger transport vehicles; take part in postal work and mail distribution and perform other duties related to the foregoing.

They are classified in the minor groups listed below:

3-0 Clerical supervisors.
3-1 Government executive officials.
3-2 Stenographers, typists and card- and tape-punching machine operators.
3-3 Bookkeepers, cashiers and related workers.
3-4 Computing machine operators.
3-5 Transport and communications supervisors.
3-6 Transport conductors.
3-7 Mail distribution clerks.
3-8 Telephone and telegraph operators.
3-9 Clerical and related workers not elsewhere classified.

3-0 CLERICAL SUPERVISORS

Workers in this minor group organise and supervise the daily activities of office workers in a public or private establishment. They are classified in the unit group mentioned below:

3-00 Clerical Supervisors.

Workers who mainly perform managerial duties, such as planning and co-ordination of activities of office departments, are classified in minor group 2-1.

Workers (such as head typist, chief bookkeeper, telephonist-in-charge, etc.) whose duties consist primarily in supervising a group of workers all of whom perform essentially the same type of clerical work (e.g. typing, bookkeeping, telephone operating, etc.) are classified in the same group as the workers supervised.

3-00 Clerical Supervisors

Workers in this unit group organise and supervise the daily activities in offices or special office departments of public or private establishments, including allocating work to be performed and controlling and examining work done.

3-00.10 Clerical Supervisor (General).

Supervises and co-ordinates the daily activities of workers engaged in clerical and related duties in the general office of a public or private establishment, or of those engaged in such work in more than one section of an establishment: organises and co-ordinates operation of bookkeeping, correspondence, recording and other clerical activities within an establishment or its general office; devises procedures to ensure an efficient flow of work; allocates work to be performed and controls and examines work done, or allocates work to specialised units such as bookkeeping, typing and correspondence units and delegates responsibility for its execution and verification to heads of the specialised units; prepares reports for the guidance of management as required.

3-00.90 Other Clerical Supervisors.

This group includes clerical supervisors not elsewhere classified, for example those who supervise workers engaged in various clerical and related occupations in one particular section of an establishment.

3-1 GOVERNMENT EXECUTIVE OFFICIALS

Workers in this minor group put into effect government policy decisions and implement laws, rules and regulations under the direction of *Government administrators* (unit group 2-02). They are classified in the unit group mentioned below:

3-10 Government Executive Officials.

Following the principle of classification according to type of work performed, government employees whose principal functions are to carry out professional, technical and related duties are classified in major group 0/1 and those whose duties consist mainly in supervising clerical work are classified in minor group 3-0. Government employees performing mainly clerical and related work, such as bookkeepers, cashiers, stenographers, typists and telephone or telegraph operators, are classified in minor groups 3-2 to 3-9, and those performing mainly sales, service, production, transport operation or labouring duties are classified, as appropriate, within major groups 4, 5, 6 and 7/8/9.

3-10 Government Executive Officials

Workers in this unit group put into effect government policy decisions and implement laws, rules and regulations under the direction of *Government administrators* (unit group 2-02). They work in national, state, provincial or local government departments or agencies, or in intergovernmental organisations, dealing with subjects such as finance, taxation, trade, health, education, social insurance and employment.

Their functions include:

directing a unit, section or local office of a government department in the implementation of government policy decisions and laws, rules and regulations;

making decisions on matters arising in the detailed implementation of government policy decisions, laws, rules, regulations and instructions of government administrators, except in important cases;

performing executive secretarial duties for departmental heads or official committees;

writing reports to inform or advise administrators on policy questions, departmental programmes and other matters;

performing other duties delegated by government administrators, generally with the assistance of subordinates.

Government employees whose principal functions are to carry out professional, technical and related duties are classified in major group 0/1 and those whose duties consist mainly in supervising clerical work are classified in minor group 3-0.

3-10.10 Government Executive Official.

Puts into effect, according to instructions from administrators, the policy decisions of central, state, provincial or local government and implements laws, rules and administrative regulations; takes decisions on matters arising in the detailed implementation of instructions from administrators, subject to reference of exceptional or important questions or cases for determination at higher level; performs one or more of a variety of functions of the kind described below:

consults administrators to obtain directives and indications of policy to be followed; acts, within a government department (central, state, provincial or local) as official in charge of a section dealing with particular administrative matters concerning such official services as labour, national service, defence, education, justice, police, prisons, welfare, public assistance, fire protection, weights and measures inspection, employment injury compensation, prices and wages control, staffing and organisation of government departments and other government functions; directs local office dealing with such matters as assessment of taxes, social security and pensions matters, employment placement and apprenticeship, collection of customs and excise duties; directs in local office official services such as preparation of registers of electors, registration of births, marriages and deaths, immigration, registration of aliens admitted into country and issue of passports; approves applications for import and export licences; inspects working conditions, including safety and welfare arrangements, in factories and other workplaces; controls, as official in charge, a specialised branch of an embassy, legation or consulate-general; undertakes executive secretarial duties for departmental heads or official committees; undertakes research not requiring specialised scientific, professional or technical qualifications using such sources of information as government documents and files, publications and interviews with knowledgeable persons in the country or overseas; makes comparative analyses and writes reports for the responsible administrator (see 2-02.10) needing information and advice on policy questions, departmental programmes, administrative problems and other matters; determines salary questions and staffing arrangements for the different government establishments; inspects and reports on the organisation of work and methods used in government offices.

Usually is assisted by subordinates.

Commonly designated according to post held or function performed.

3-2 STENOGRAPHERS, TYPISTS AND CARD- AND TAPE-PUNCHING MACHINE OPERATORS

Workers in this minor group record oral or written matter by shorthand and typing and operate card- or tape-punching machines. They are classified in the unit groups listed below:

3-21 Stenographers, Typists and Teletypists.

3-22 Card- and Tape-Punching Machine Operators.

3-21 Stenographers, Typists and Teletypists

Workers in this unit group record oral or written matter by shorthand writing and typing on ordinary or specialised typing machines.

Their functions include:

recording material in shorthand and transcribing it in typewritten form;

making appointments for superior and dealing with telephone calls;

making verbatim records of proceedings in shorthand;

typing material from drafts, existing documents or dictation;

operating teletype or teleprinter machines to transmit and receive messages.

3-21.10 Stenographer-Typist (General).

Records various kinds of dictated or other matter in shorthand and makes a transcription in typewritten form:

records in shorthand, by hand or shorthand-writing machine, dictated letters or other matter; types matter from shorthand notes, written drafts, recording on dictating machine or other sources and cuts stencils.

May perform limited clerical duties.

3-21.20 Stenographic Secretary.

Records various kinds of dictated or other matter in shorthand, makes a transcription in typewritten form, and performs certain clerical duties to relieve superior of routine tasks:

records dictated letters, reports or other matter in shorthand; types matter from shorthand notes, recording on dictating machine or other sources; makes appointments for superior and reminds him when they are due; deals with inquiries and answers and makes telephone calls; passes personal and important mail to superior and deals with routine correspondence on own initiative; takes care of special files.

May use a shorthand-writing machine.

3-21.30 Verbatim Reporter.

Makes verbatim records of proceedings by shorthand writing or using a shorthand-writing machine:

attends meetings, lectures, courts of law and other proceedings and makes verbatim records in rapid shorthand; dictates shorthand notes to typist or into dictating machine, or passes notes to typist for transcription.

May be designated according to type of proceedings attended. May perform typing duties.

3-21.40 Typist.

Transcribes in typewritten form letters, reports, documents, accounts and other material from written or printed sources, from recordings on a dictating machine, or other sources:

types letters, memoranda and similar matter from written drafts or recordings; types statistical information, after determining layout in accordance with instructions or using own judgment; types on forms, bills, invoices, insurance policies or other documents and cuts stencils; checks typewritten work for correctness.

May perform limited routine clerical work. May be designated according to material typed or machine used.

3-21.50 Teletypist.

Sends and receives messages by means of a teleprinter:

establishes electrical connection with another teleprinter or network of teleprinters; sends messages by pressing keys of teleprinter; receives messages and detaches them from machine; reports faults to supervisor or to telecommunications service centre.

Telegrapher is classified in 3-80.40.

3-21.90 Other Stenographers, Typists and Teletypists.

This group includes stenographers, typists and teletypists not elsewhere classified, for example those who operate typewriters with removable type of various sizes and styles.

3-22 Card- and Tape-Punching Machine Operators

Workers in this unit group operate machines that record data in the form of punched holes in cards or special tapes for use in data processing machines or for other purposes.

3-22.20 Card- and Tape-Punching Machine Operator.

Operates alphabetic or numeric key-punch machine to record data on cards or tapes or to verify the correctness of punching:

loads machine with decks of cards or reels of magnetic or paper tapes; sets machine in operation and moves switches to select appropriate functions; depresses keys to record data from source material in the form of perforations on card or tape or make magnetic impressions; observes machine to detect faulty operation.

May operate machine that types identifying data on cards as holes are punched. May verify accuracy of data punched, by performing similar tasks as for punching, using keyboard-type machine that rejects incorrectly punched card or tape.

3-22.90 Other Card- and Tape-Punching Machine Operators.

This group includes card- and tape-punching machine operators not elsewhere classified, such as those who work on specialised equipment such as flexowriters or on special verifying machines.

3-3 BOOKKEEPERS, CASHIERS AND RELATED WORKERS

Workers in this minor group keep records of business transactions and handle cash on behalf of an organisation and its customers and other persons; calculate costs and wages and perform other specialised bookkeeping and computing clerical duties. They are classified in the unit groups listed below:

3-31 Bookkeepers and Cashiers.
3-39 Bookkeepers, Cashiers and Related Workers Not Elsewhere Classified.

3-31 Bookkeepers and Cashiers

Workers in this unit group keep records of the financial transactions of an undertaking and handle cash on its or its customers' behalf.

Their functions include:

performing bookkeeping operations for the whole or parts of an undertaking;

receiving, changing and paying out money in banks, offices, post offices and other establishments;

receiving cash in retail stores, theatres and other establishments.

3-31.10 Bookkeeper (General).

Maintains complete records of financial transactions of an undertaking:

verifies accuracy of documents and records relating to payments, receipts and other financial transactions and makes necessary calculations; makes and checks entries in and totals ledgers at regular intervals; compiles reports at specified intervals to show receipts, payments, balances of accounts owing to or by the undertaking and other financial information.

May prepare financial statements and accounts for the year or other specified period, calculate and arrange payment of wages, prepare statements of accounts for customers and perform a variety of other tasks related to bookkeeping.

Accountants are classified in unit group 1-10.

3-31.20 Bookkeeping Clerk.

Maintains records of one phase of an undertaking's financial transactions, for example accounts receivable or accounts payable or performs other limited bookkeeping functions:

verifies accuracy of relevant documents and makes necessary calculations; makes and checks entries and totals ledgers, balancing them at regular intervals.

May make physical check of stock, calculate commissions, discounts and interest charges and perform related tasks.

Usually works under supervision of *Bookkeeper (general) (3-31.10)*.

Workers occupied mainly in operating bookkeeping machines are classified in 3-41.20.

3-31.30 Office Cashier.

Takes charge of cash and keeps records of cash transactions incidental to the conduct of a business:

receives incoming cash, checks it against sales slips or other documents; prepares money for deposit at bank and arranges withdrawals; verifies cash held against records.

May make up wage sheets and wage packets and pay wages. May make certain payments or authorise them on own responsibility. May use adding, calculating or cheque-writing machines and perform a variety of other tasks related to monetary transactions.

3-31.40 Bank Teller.

Deals directly with clients of a bank in respect of deposits and withdrawals and related matters:

checks and completes deposit and withdrawal slips presented by clients, examines cheques and verifies signatures and customer's credentials or account balance; makes appropriate entries in customer's account book or on documents to be transferred to accounts section; usually receives and pays out cash and checks cash balance against transactions at end of day.

May calculate commission or charges on transaction made. May perform above functions without handling cash where this operation is performed by bank *Cash desk cashier (3-31.60)*. May specialise in foreign exchange, travel cheques or other types of across-the-counter transactions and be designated accordingly.

Workers transacting business relating to loans, investments and similar financial matters are classified in 3-39.40.

3-31.50 Money Changer.

Changes money from one currency to another:

ascertains customers' requirements; verifies that transaction complies with foreign currency exchange control regulations; counts and examines currency and travel cheques to be exchanged; calculates equivalent value in required currency and issues money accordingly; counts and records cash at the beginning and end of each period of duty and prepares reconciliation statement.

3-31.60 Cash Desk Cashier.

Receives cash in payment for goods or services and gives change to clients in a retail store, railway or boat station, theatre or other establishment or performs simple cash-handling operations in a bank:

checks amount receivable, collects cash, gives change and issues receipts or tickets as required; pays out cash against written orders or credit notes and obtains receipts; keeps records of amounts received and paid and reconciles cash balance with records.

May use a cash register or an automatic ticket-issuing machine. May be designated according to nature of establishment or type of transaction carried out.

Transport conductors are classified in unit group 3-60.

3-31.70 Post Office Counter Clerk.

Receives letters and parcels, sells postage stamps and conducts other post office counter business such as services for the transfer or banking of money and the payment of accounts or licence fees:

weighs letters and parcels and computes amounts due for postage, registration or insurance; sells postage and other stamps; receives and pays out cash in connection with money transfer, banking or other services operated by the postal service; keeps records of transactions and balances cash, stamps and vouchers at the end of each period of duty.

May obtain telephone connections for customers, receive and dispatch telegrams and assist in the sorting of mail.

Other clerical workers employed by postal organisations are classified elsewhere according to the particular work performed, for example *Mail sorting clerk (3-70.20)*, *Correspondence clerk (3-93.20)*, *Filing clerk (3-95.30)*, etc.

3-31.90 Other Bookkeepers and Cashiers.

This group includes bookkeepers and cashiers not elsewhere classified, for example those who check bookkeeping entries and other financial records to verify their accuracy and completeness.

3-39 Bookkeepers, Cashiers and Related Workers Not Elsewhere Classified

Workers in this unit group perform bookkeeping, cash-handling and financial computing duties not elsewhere classified.

Their functions include:

calculating wage, material, overhead and other operational costs;

calculating wages due from records of hours worked or work performed by individual employees;

carrying out specialised clerical tasks relating to the financial transactions of a bank, investment or other financial organisation;

performing other bookkeeping, cash-handling and financial computing tasks.

3-39.20 Cost Computing Clerk.

Calculates wage, material, overhead and other operational costs of an establishment:

selects records such as time sheets, payrolls, production records, material accounts and operating charts and extracts data required for calculations; calculates unit costs of different operations or products and presents the information obtained in form required.

May prepare a composite report showing total costs, selling prices and profit.

3-39.30 Wages Clerk.

Calculates wages due from records of hours worked or work performed by individual employees:

enters on individual wage records information on hours worked, rates of pay, overtime, bonus or piece-work earnings and deductions for taxes, social security and other contributions; computes amounts due and records details on sheets and workers' pay statements; prepares summaries of payments and deductions.

May make out pay cheques and prepare and distribute wage packets.

Workers whose duties consist mainly of maintaining records of time worked, or periods workers have been on duty, are classified in 3-39.90.

3-39.40 Finance Clerk.

Carries out specialised clerical tasks relating to financial transactions of a bank, investment house or other financial organisation:

interviews clients, prepares financial documents, handles collateral and completes transactions for clients desiring loans on securities; maintains records of bonds, shares, or other securities bought or sold on behalf of clients or employer; calculates interest or brokerage charges and stamp duties; performs other clerical tasks pertaining to financial transactions.

May be designated according to types of transactions performed or type of organisation in which employed.

3-39.90 Other Bookkeepers, Cashiers and Related Workers.

This group includes bookkeepers, cashiers and related workers not elsewhere classified, for example those collecting rents or hire purchase payments; keeping records of times of arrival and departure of workers; changing currency units of large denominations into smaller units.

3-4 COMPUTING MACHINE OPERATORS

Workers in this minor group operate bookkeeping, calculating and automatic data-processing machines. They are classified in the unit groups listed below:

3-41 Bookkeeping and Calculating Machine Operators.
3-42 Automatic Data-Processing Machine Operators.

Computer programmer is classified in unit group 0-84.

3-41 Bookkeeping and Calculating Machine Operators

Workers in this unit group operate bookkeeping machines to make records of business transactions and make arithmetical calculations on keyboard calculating machines.

Automatic data-processing machine operators are classified in unit group 3-42.

3-41.20 Bookkeeping Machine Operator.

Operates a bookkeeping machine to make records of business transactions:

selects required kind of bookkeeping form and inserts it in machine; examines invoices, receipts and other documents for correctness; presses keys of machine keyboard and manipulates levers to record data on paper and to calculate and record totals, net amounts and other computations.

May prepare bills and invoices by use of machine and perform a variety of clerical tasks related to bookkeeping. May be designated according to type of bookkeeping machine operated or to type of records maintained.

3-41.30 Calculating Machine Operator.

Operates an electrical or manually actuated machine which makes arithmetical calculations:

ascertains nature of calculations to be made; presses key of machine keyboard and manipulates levers to add, subtract, multiply or divide, according to type of calculation required; records results of calculations and enters them on forms or documents according to instructions received; verifies information on payrolls, invoices, balance sheets, statistical summaries and other records by repeating the calculations made in compiling the information.

May operate machine to make complex calculations such as obtaining square roots. May be designated according to type of machine operated.

3-42 Automatic Data-Processing Machine Operators

Workers in this unit group operate automatic machines which classify, sort, calculate, summarise and record scientific, technical, business or other data.

Their functions include:

operating electronic computers, electrical or electro-mechanical punched-card sorting, tabulating and related machines;

operating peripheral units of data-processing equipment, such as card-to-tape convertors or high-speed printers.

3-42.20 Electronic Computer Operator.

Sets and controls electronic computer to process business, scientific, engineering or other data according to operating instructions:

sets control switches on computer and peripheral equipment according to programme and operating instructions; loads input, output and memory units with tapes, punched cards, print-out forms and magnetic drums; starts operation and observes control panel on computer console for error indications, machine stoppages or faulty output and takes prescribed remedial action; clears units at end of run and records operating times.

May control computer to provide input or output service for another computer.

Computer programmer is classified in 0-84.20.

3-42.30 Punched-Card Machine Operator.

Operates machines in which cards punched with holes representing statistical or other data are sorted into specific groups, or machines which process data from cards into tabulated and recorded form:

sets controls or wires control panel of machine to perform the required operations; loads machine with deck of cards; observes machine for malfunctioning and stops machine to remove jammed cards; routes processed cards to next work station.

May operate one kind of machine, such as sorting machine or tabulating machine, and be designated accordingly. May maintain files of punched cards.

Card- and tape-punching machine operator is classified in 3-22.20.

3-42.90 Other Automatic Data-Processing Machine Operators.

This group includes automatic data-processing machine operators not elsewhere classified, for example those who operate card-to-tape or tape-to-card converting machines; operate optical scanning equipment for transferring mechanically information represented by specially marked characters to punched cards, tape or other documents; or operate other specialised equipment for use in connection with computers such as high-speed printing equipment.

3-5 TRANSPORT AND COMMUNICATIONS SUPERVISORS

Workers in this minor group supervise, control and inspect land, air and waterborne transport service operations and telecommunications service operations. They are classified in the unit groups listed below:

3-51 Railway Station Masters.
3-52 Postmasters.
3-59 Transport and Communications Supervisors Not Elsewhere Classified.

3-51 Railway Station Masters

Workers in this unit group organise, control and co-ordinate passenger and related railway services at a railway station and supervise the operation of trains within the station limits.

3-51.10 Railway Station Master.

Organises, controls and co-ordinates passenger and related services at a railway station:

organises and controls railway passenger services at a station, including sale and collection of tickets, handling of baggage, parcels and mail bags and providing information to clients; supervises operation of all trains within the station limits; co-ordinates the activities of workers under his control; exercises surveillance of application of security measures; attends to complaints regarding the service; reports periodically to divisional or regional superior.

May engage temporary staff. May control collection and delivery of goods by road vehicles. May be required to develop passenger and parcel traffic and also undertake some or all of the duties of *Railway goods agent (3-59.35)*.

3-52 Postmasters

Workers in this unit group organise, control and co-ordinate post office operations within an urban locality or other limited geographical area.

3-52.10 Postmaster.

Organises, controls and co-ordinates postal and related services in an urban locality or other limited geographical area:

organises and controls in a local post office, either directly or through subordinates, the collection, processing and delivery of mail and the conduct of other post office services such as the sale of stamps, sending and receipt of telegrams, transfer of money, payment of pensions and savings bank business; co-ordinates the activities of workers under his control and organises staff training; exercises surveillance of application of security procedures; attends to customer complaints; reports periodically to regional director of postal services.

May publicise postal services and negotiate with local suppliers of goods and various services. May engage temporary staff and control sub-post offices in his area.

3-59 Transport and Communications Supervisors Not Elsewhere Classified

Workers in this unit group supervise, control and inspect service operations of a transport or communications undertaking.

Their functions include:

supervising railway or road transport services by field inspection;

supervising freight service at a railway yard;

directing the movement of railway trains within a specified area;

preparing time schedules and assigning drivers and vehicles to particular routes or trips;

controlling and supervising air transport services;

controlling the routing and transmission of radio, telephonic and telegraphic communications;

performing similar controlling and supervisory duties in connection with ferry, barge or pipeline services.

Railway station masters are classified in unit group 3-51 and *Postmasters* in 3-52.

3-59.20 Railway Service Supervisor.

Supervises and co-ordinates one or more of the service activities of the traffic department of a railway undertaking:

supervises, directly or through subordinates, and co-ordinates the activities of workers engaged in passenger and goods traffic handling, the manning of trains, allocation of rolling stock, make-up and break-up of trains, preparation of operating schedules or other operational services; conducts investigations of users' requirements, prepares reports on operational efficiency and makes proposals for future development for the information of management.

Railway station master is classified in 3-51.10 and *Railway goods agent* in 3-59.35.

3.59.25 Train Dispatcher.

Directs the movement of trains within a division or zone of a railway system:

issues instructions to signalmen, engine drivers, train conductors and brakemen; keeps record of train movements; re-routes or re-schedules trains during an emergency; reports to his superior on deviations, train accidents and damage to railway; co-operates with other train dispatchers.

May select types of engine to meet the need of runs, assign drivers and crews and keep records of engines available and in use.

3-59.30 Railway Transport Service Inspector.

Makes field inspections of railway and underground transport services.

rides passenger and freight trains to determine cause of non-conformance with schedules; makes investigations, such as checking running times between stations, time taken to load and unload passengers or freight, and volume of traffic at different stations; examines schedules and records at stations; checks the efficiency and deportment of train crews; recommends changes to railway management for improvement of operating efficiency.

3.59.35 Railway Goods Agent.

Directs and controls freight service at a railway yard: supervises shunting operations and the collection, delivery, loading and unloading of goods; co-ordinates the activities of all employees in yard and goods office; exercises surveillance of application of security rules; ensures that complete records are kept and that collections and deliveries are made against authorised documents.

May be required to develop goods traffic in the area served by his yard.

3-59.40 Road Transport Service Supervisor.

Supervises and co-ordinates one or more of the service activities of the traffic department of a road transport undertaking:

supervises, directly or through subordinates, and co-ordinates the activities of workers engaged in route planning and scheduling of passenger and goods vehicles, allocation of vehicles and drivers according to operating requirements, loading and unloading of vehicles, storage of goods in transit, provision of terminal facilities, authorisation of departure of vehicles, cleaning and servicing of vehicles or other operational services; conducts investigation of users' requirements, prepares reports on operational efficiency and makes proposals for future development for the information of management.

May prepare and give evidence to public authorities in support of applications for route and service authorisations.

3-59.45 Road Passenger Transport Service Inspector.

Makes field inspections of road passenger transport services:

rides buses and trams to determine cause of non-conformance with schedules; makes investigations, such as checking running time between points, the time taken to load and unload passengers and baggage, and the volume of traffic at different points and at different times of the day; checks the efficiency and deportment of vehicle crews and the correct issue of tickets to passengers; recommends changes to management for the improvement of operating efficiency.

May re-route trams or buses in cases of traffic congestion. May collect information and prepare reports in connection with proposals for new or revised services.

3-59.50 Air Transport Service Supervisor.

Supervises and co-ordinates one or more service activities of an air transport undertaking:

supervises, directly or through subordinates, and co-ordinates passenger and cargo-handling services, including organisation of seat reservations, preparation of passenger lists and freight manifests; co-ordinates arrangements for flights and ensures required flight authorisations are obtained; directs and co-ordinates the activities of workers under his control; conducts investigations of users' requirements, prepares reports on efficiency of different units and methods and makes proposals on future development for the information of management.

May prepare evidence for submission to regulatory agencies. May organise staff training.

3-59.60 Air Traffic Controller.

Clears aircraft for landings and take-offs at airport and controls aircraft in flight in the vicinity of airport or in a designated sector of airspace:

controls movement of aircraft about to leave; transfers departing flights to surveillance of sector controller and takes over control of incoming flights; controls and monitors airport lighting and other airport installations and issues instructions to pilots and ground staff in cases of emergency; examines and approves flight plans received from agents of companies using the airport; if in charge of a sector of airspace, transfers outgoing flights to next sector controller; accepts flights entering his sector and advises pilots on altitude required to maintain separation of aircraft and gives warning of changes in weather conditions.

3-59.70 Flight Operations Officer.

Co-ordinates flight planning and assists in monitoring of en-route operations:

co-ordinates planning of flights; assists in monitoring of en-route operations; applies company practices and policies and advises pilots-in-command accordingly in all matters affecting diversions.

May share responsibility with pilot-in-command for authorising flight departures.

3-59.75 Telecommunications Service Supervisor.

Controls and supervises telecommunications operational services, such as radio, telephone and telegraph:

supervises telecommunications traffic handling, the preparation of operating schedules or other operational services; directs and co-ordinates the activities of workers engaged in operation of telecommunications services and organises staff training; conducts investigations of users' requirements and prepares reports for management on operating efficiency and makes proposals for future development.

May negotiate with owners of property affected by communications services.

Foremen-supervisors concerned with installation and maintenance of telecommunications equipment are classified in unit group 8-56 and *Telecommunications engineers* are classified in 0-23.40.

3-59.80 Postal Services Supervisor.

Supervises and co-ordinates mail collection, sorting and distribution services, for a defined geographical area:

plans mail routes, collection points and collection and delivery schedules and co-ordinates local with national mail distribution services; supervises and co-ordinates the activities of postal workers engaged in collecting and receiving incoming mail, checking and cancelling postage paid, sorting letters, packages and parcels, recording registered mail, dispatching and delivering sorted mail and performing related tasks; exercises general supervision over application of security precautions.

3-59.90 Other Transport and Communications Supervisors.

This group includes transport and communications supervisors, dispatchers and controllers not classified elsewhere, for example those supervising and co-ordinating one or more of the operational activities of a barge, ferry or pipeline service and supervising the activities of workers engaged therein.

3-6 TRANSPORT CONDUCTORS

Workers in this minor group take charge of trains, buses and other public transport vehicles during journeys and safeguard passengers. They are classified in the unit group mentioned below:

3-60 Transport Conductors.

3-60 Transport Conductors

Workers in this unit group take charge of passenger trains, buses and other public transport vehicles during journeys, deal with passengers, ensure that safety regulations are respected and that time schedules are maintained.

Their functions include:

taking charge of passenger train during journey;

supervising sleeping or pullman car;

dealing with passengers on trains and buses;

signalling driver to start or stop;

performing similar duties in other public conveyances.

3-60.20 Railway Passenger Train Guard.

Takes charge of passenger train during journey:

directs activities of crew; signals engine driver to start or stop, taking precautions for safety of passengers; supervises switching of coaches and loading and unloading of parcels and small items of freight; keeps records of items loaded and unloaded and of coach numbers making up train; takes appropriate action in case of emergencies or accidents; gives information to passengers about train rules, train stops, connections and timetables; submits report at termination of each run or shift.

May collect tickets, passes or fares from passengers.

Railway freight train guards are classified in 9-84.20.

3-60.30 Sleeping- or Pullman-Car Attendant.

Takes charge of sleeping car or pullman car on a railway train:

checks entry on passenger list and collects sleeping car or pullman car tickets; keeps records of tickets received and passengers' destinations, and advises passengers when trains are approaching their destinations; provides for comfort of passengers and answers their inquiries.

May take charge of observation and lounge section of train.

Workers on railway dining, buffet and parlour cars whose duties consist wholly or mainly of preparing or serving meals and alcoholic or other refreshments are classified in minor group 5-3.

3-60.40 Bus Conductor.

Issues tickets and supervises safety and comfort of passengers on buses:

collects fares and issues tickets; signals to driver to stop when passengers wish to alight from or board bus, and signals again when safe to pull away; announces stops and opens and closes doors; controls movement of passengers on bus and ensures observance of regulations concerning their safety and comfort; co-operates with driver in maintaining time schedules; keeps simple records, such as of trips, tickets issued, fares collected and hours on duty.

May work on tram, trolleybus, coach or other road passenger transport vehicle and be designated accordingly.

3-60.90 Other Transport Conductors.

This group includes transport conductors not elsewhere classified, for example those in charge of passengers in cable cars, ferries and hovercraft.

3-7 MAIL DISTRIBUTION CLERKS

Workers in this minor group perform sorting, recording, delivery and other duties in connection with the distribution of mail and the forwarding of messages. They may be employed in public services or private enterprises. They are classified in the unit group mentioned below:

3-70 Mail Distribution Clerks.

Workers primarily engaged in driving vehicles for mail transport are classified in minor group 9-8.

3-70 Mail Distribution Clerks

Workers in this unit group perform sorting, recording, delivery and other duties in connection with mail distribution and the forwarding of messages.

Their functions include:

sorting and delivering mail to private houses and elsewhere;

performing mail handling duties in public postal services;

sorting, delivering and keeping simple records of incoming and outgoing letters, small packages and messages in an enterprise or organisation;

dispatching outgoing mail and performing related duties.

3-70.20 Mail Sorting Clerk.

Sorts and dispatches mail according to destination and performs associated duties according to employment in postal or other establishment:

in postal organisation, examines mail for correct postage and cancels stamps by hand or machine; sorts outgoing mail according to destination; redirects undelivered mail where address is known, deals with inadequately addressed mail and initiates investigation of complaints regarding lost items; in other organisations opens incoming mail and sorts it for delivery to departments.

May examine outgoing mail for destination, seal in appropriate envelopes and affix stamps by hand or frank by postage meter. May stamp date and time of arrival on incoming mail and record valuable items. May collect mail from post office and distribute to departments of an establishment.

3-70.30 Postman.

Delivers mail along a regular route to private homes and business establishments after sorting it according to streets and street numbers:

delivers letters, small packages and printed matter sent through the mail service; collects money for cash-on-delivery packages; records deliveries of registered mail.

May deliver telegrams and night letter cables. May collect mail from mail-boxes and assist in sorting it. May drive vehicle on delivery route or collection round.

3-70.40 Messenger.

Delivers messages, packages and other items to offices within an establishment or elsewhere;

walks or rides vehicles and delivers various items for employer, such as documents, files, packages and messages, within an establishment to other business concerns or elsewhere; carries out other errands as required.

May keep simple records and obtain receipts for articles delivered. May perform additional duties, such as those of receptionist, and be variously designated.

3-70.90 Other Mail Distribution Clerks.

This group includes mail distribution clerks not elsewhere classified, for example those dispatching outgoing mail after calculating required postage and affixing stamps or franking mail in a machine.

3-8 TELEPHONE AND TELEGRAPH OPERATORS

Workers in this minor group transmit and receive messages by operating telecommunications equipment on land and sea and in aircraft. They are classified in the unit group mentioned below:

3-80 Telephone and Telegraph Operators.

Operators of special typewriters such as telex or teleprinter equipment are classified in 3-21.50.

3-80 Telephone and Telegraph Operators

Workers in this unit group transmit and receive messages by operating wire and radio telephone and telegraph equipment.

Their functions include:

operating public service and private telephone switchboards;

operating wire or radio telegraph equipment in land stations;

operating radio communications equipment on board aircraft and ships;

performing other functions related to message transmission by telephone and telegraph.

3-80.20 Telephone Switchboard Operator.

Operates a telephone switchboard or a section thereof, dealing with local or long-distance calls:

observes switchboard for incoming calls and moves cords, switches or other devices to make contact with caller and person called; makes connections for outgoing calls; routes long-distance calls or gives necessary instructions to other switchboard operators; observes and records charges for long-distance or other calls.

May deal with telephonic inquiries, give information and record messages.

3-80.30 Radio-Telephone Operator (Land-Based).

Operates land-based radio telephone equipment to transmit messages to or receive them from, ships, aircraft, vehicles, field or other installations:

tunes radio set to desired frequency and adjusts as required; establishes contact with station called or acknowledges incoming calls; transmits and receives operational and other messages, in ordinary language or in codes.

May conduct routine tests and make minor repairs. May type and transmit messages by teleprinter. May operate telephone switchboard.

3-80.40 Telegrapher.

Operates telegraphic equipment to transmit and receive messages by wire or radio:

translates messages into Morse code and operates telegraphic keyboard to transmit them; interprets incoming aural signals and records message in writing; delivers message or passes it to delivery services; keeps record of messages sent and received.

May test and maintain telegraphic equipment. May also operate teleprinter. May be employed by newspaper or railway company and be designated accordingly.

3-80.50 Ship's Radio Officer.

Operates radio telegraph and radio telephone equipment on board a ship:

transmits messages by radio telegraph or radio telephone; receives and records incoming messages, including navigational and other data, by radio; keeps log of messages sent and received; makes minor repairs to radio equipment.

May maintain radar equipment.

3-80.60 Flight Radio Operator.

Operates radio equipment aboard aircraft in flight:

maintains contact with ground stations; sends and receives messages by radio, gives information to the aircraft pilot and keeps radio log book; inspects and tests equipment before flight.

May replace defective parts.

3-80.90 Other Telephone and Telegraph Operators.

This group includes telephone and telegraph operators not elsewhere classified, for example those engaged mainly in receiving and transmitting information and messages by telephone.

3-9 CLERICAL AND RELATED WORKERS NOT ELSEWHERE CLASSIFIED

Workers in this minor group perform various clerical and related duties not elsewhere classified. Included are those who record the receipt, storage, weighing and issuing of finished goods or materials; dispatch, receive, store, issue and weigh materials; prepare orders for materials required for production processes; calculate quantities needed and draw up production schedules; prepare business letters and other correspondence; provide information and services to visitors in agencies; code and compile statistical data; operate office machines for reproducing copies of documents;

operate addressing machines; carry out other recording, correspondence and filing tasks. They are classified in the unit groups listed below:

3-91	Stock Clerks.
3-92	Material and Production Planning Clerks.
3-93	Correspondence and Reporting Clerks.
3-94	Receptionists and Travel Agency Clerks.
3-95	Library and Filing Clerks.
3-99	Clerks Not Elsewhere Classified.

3-91 Stock Clerks

Workers in this unit group maintain records of goods and materials received, weighed, issued, dispatched or put into stock.

Their functions include:

controlling and arranging receipt and dispatch of goods and materials and keeping relevant records;

maintaining stock records and periodically checking stock held against the records;

maintaining records of stores, supplies and spare parts held in storeroom and of issues and replacements received;

weighing goods and materials received, issued, produced or dispatched and keeping relevant records.

3-91.20 Dispatching and Receiving Clerk.

Arranges and controls the receipt and dispatch of goods and keeps appropriate records:

checks incoming goods against bills of lading, vouchers and other documents, notes damages or deficiencies and arranges delivery as required; examines particulars of goods to be dispatched; studies schedules and cost tables and decides upon the best method of transportation; arranges assembly of goods and ensures that they are correctly addressed and otherwise ready for dispatch; makes out dispatch notes and attends to such matters as insurance, customs clearance, collection, routing and delivery; keeps records of goods dispatched and received.

May supervise warehouse porters and other workers. May specialise and be designated according to type of goods handled, nature of clerical duties performed or type of transport employed.

3-91.30 Stock Records Clerk.

Maintains stock records of an enterprise, verifies issues, estimates needs and requisitions new stocks:

examines delivery and issue vouchers and makes necessary entries in records; calculates stocks held in various departments, examines production, sales or other records and estimates future needs; makes requisitions to obtain required stock; periodically checks records against stocks held.

May check inventories kept by other workers. May be responsible for safe custody of stock.

3-91.40 Storeroom Clerk.

Receives, stores and issues tools, merchandise, equipment or other goods and maintains relevant records:

checks incoming goods against demand notes, vouchers or other documents and notes damages or deficiencies; enters details of goods received in storeroom ledgers or on record cards; ensures that goods are placed in correct position in store, marking them with identifying data as required; issues stock and makes requisitions for replacements according to instructions or on own initiative; periodically checks stock against stock records and submits reports.

May be designated according to type of goods in store.

3-91.50 Weighing Clerk.

Weighs goods received, issued, produced or dispatched and maintains relevant clerical records:

places or directs the placing of goods on weighbridge or other weighing device; reads scale of weighing machine, makes allowance for weight of container or carrier, certifies or issues vouchers and enters details in record book; collates details of goods weighed and submits returns and reports as necessary.

May examine and classify goods weighed. May be designated according to materials weighed.

3-91.90 Other Stock Clerks.

This group includes stock clerks not elsewhere classified, for example those who compile inventories of furniture and household effects received for storage in depositories.

3-92 Material and Production Planning Clerks

Workers in this unit group compute quantities of materials required at specified dates for the production programme of an undertaking or prepare production operations schedules.

Their functions include:

calculating the amounts of materials needed for production programmes and ensuring they are available when required;

drawing up production schedules, taking account of demand and production capacity for various items of output, and keeping records of performance.

Production planning engineers and technicians are classified in minor group 0-2/0-3.

3-92.20 Material Planning Clerk.

Computes quantities of materials required for the production or construction programme of an undertaking, ascertains stocks, schedules deliveries and verifies execution of orders:

computes quantities, qualities and types of materials required by production programme; converts requirements into conventional sizes and quantities; prepares schedules of requirements of materials at various dates during a specified period; verifies availability of stocks or arranges deliveries; investigates delays and initiates remedial action.

May analyse drawings to estimate materials required.

3-92.30 Production Planning Clerk.

Prepares or assists in preparing production operations schedules, using data derived from customers' orders and information on production capacity and performance:

analyses orders and summarises demand according to product specifications and prepares or assists in preparing corresponding schedule of production operations and processes; keeps records of machine performance, production rates and outputs; surveys progress of production by examining work tickets or other progress control data; amends, or proposes amendment of, production operations schedule in the light of actual production performance; prepares reports on progress for the information of management.

3-93 Correspondence and Reporting Clerks

Workers in this unit group perform a variety of clerical tasks, prepare correspondence, or deal with routine aspects of insurance transactions, legal matters or personnel records.

Their functions include:

performing various clerical tasks, depending on nature and size of office;

drafting business letters and related documents;

keeping records of establishments' personnel;

carrying out specialised clerical tasks in connection with legal or insurance matters.

3-93.10 Office Clerk (General).

Performs variety of clerical tasks, such as those which follow, depending on nature and size of office in which employed:

examines incoming mail referred to him for attention and assembles information needed for preparation of reply; prepares and sends replies to correspondence received and initiates other routine correspondence; collates sales records and gives instructions for preparation of invoices and other documents in connection with sales and deliveries; receives and interviews callers, arranges appointments and directs inquiries to appropriate person or department; receives payments of accounts and issues receipts; makes entries in books showing receipts and payments and other transactions; compiles summaries of transactions and other reports for information of management; completes official forms relating to licences, sales taxes or other matters; files vouchers, receipts, letters and other documents; makes telephone calls to obtain or supply information; records issues of stationery and equipment to staff.

3-93.20 Correspondence Clerk.

Composes and sends letters and takes other action necessary to deal with the correspondence of private employers, associations, companies or official bodies:

reads incoming mail and, where appropriate, links it with previous correspondence on the same subject; examines documents or makes inquiries to obtain information necessary for replies; initiates correspondence as required; writes, drafts or dictates letters for typing; notes dates on which reminders or further letters are to be sent.

May maintain correspondence files. May be designated according to the type of correspondence handled.

3-93.30 Personnel Clerk.

Keeps employment records of an organisation's personnel:

prepares documents relating to new employees showing name, address, qualifications, rates of pay and other details and amends records as necessary; keeps sickness record and registers leave absences, bonuses earned, pay and other information; deals with inquiries and with correspondence relating to records of personnel.

May obtain testimonials in respect of new workers or provide them for workers who leave.

3-93.40 Legal Clerk.

Carries out specialised clerical tasks in connection with legal matters:

makes search of legal records to prepare information relevant to case under consideration; examines or makes arrangements for examination of documents representing title to property or rights under wills; files pleadings with clerks of courts and serves copies of pleadings on opposing counsel; prepares affidavits of documents; takes charge of documents and correspondence of assigned cases.

May specialise and be designated according to nature of legal clerical duties performed.

3-93.50 Insurance Clerk.

Carries out specialised tasks incidental to the transaction of life, fire, marine, automobile or other type of insurance:

issues, receives and checks forms of application for insurance; arranges for medical examinations of applicants for life insurance and for surveys of property to be insured, or obtains documentary information as necessary; issues temporary cover notes on behalf of insurers; drafts insurance policies or gives necessary instructions; calculates premiums, surrender or loan values of policies, and commissions payable, and makes formal requests for outstanding premiums; alters insurance coverage as requested and calculates revised premium; examines claims, computes amounts due or proposes settlements terms; performs other clerical tasks related to insurance business.

3-93.90 Other Correspondence and Reporting Clerks.

This group includes correspondence and reporting clerks not elsewhere classified, for example those who write letters and complete forms on behalf of illiterate persons; prepare or revise mailing lists, telephone directories and other lists of names and addresses from letters, cards, vouchers and other sources.

3-94 Receptionists and Travel Agency Clerks

Workers in this unit group make appointments, receive clients, provide information in offices, hotels and other establishments, make travel arrangements and obtain hotel reservations for travellers.

Their functions include:

making appointments, receiving callers or customers, ascertaining their needs and directing them accordingly;

allocating rooms and performing related duties in hotels and similar establishments;

receiving patients in physicians' or dentists' offices;

providing information about tours and other travel, arranging itineraries and accommodation and obtaining tickets for travellers.

3-94.10 Receptionist (General).

Receives people coming into an establishment, ascertains their wants and directs them accordingly;

greets caller and ascertains wants; supplies information or announces arrival and directs visitor to person called upon; deals with telephone calls requesting information or appointments; keeps records of callers.

May perform other limited clerical duties.

3-94.20 Hotel Receptionist.

Receives guests at hotels and similar establishments and performs a variety of services for them on arrival, departure and during their stay:

controls advance bookings, makes reservations and keeps records of rooms occupied; receives guests, ascertains their requirements and assigns rooms; answers questions relating to hotel, tourist and other local services and amenities; transmits messages for guests; presents accounts to departing guests and arranges for clearance of baggage and departure.

May perform some of the duties of *Hotel concierge (5-40.55)*, for example: issue room keys and give instructions to porter; receive and sort incoming mail.

May keep guests' accounts, prepare bills and receive payment. May sell tobacco, newspapers and other articles.

3-94.30 Doctor's or Dentist's Receptionist.

Receives patient in doctor's or dentist's consulting rooms, makes appointments and keeps records of patients' visits:

receives patients, ascertains name, traces records and directs to appointment; maintains list of appointments and files patients' documents.

May prepare and dispatch accounts and complete social security claim forms. May sterilise instruments and perform other minor duties to assist doctor or dentist.

Dental chairside attendants are classified in 5-99.40.

3-94.40 Travel Agency Clerk.

Prepares itineraries and makes travel and hotel reservations for customers:

ascertains customer's requirements; examines schedules of air, sea or land transport and/or hotel facilities and advises customer on itinerary and method of travel; makes reservations in accordance with customer's requirements, completes and issues tickets, vouchers and other documents, and forwards baggage.

May make arrangements for special travel facilities, package tours, and hire of ski or other special equipment. May obtain passports, visas and foreign currency and attend to other special requirements of travellers. May prepare accounts and receive payments.

Workers mainly employed in the routine issuing of travel tickets for cash are classified in 3-31.60.

3-94.90 Other Receptionists and Travel Agency Clerks.

This group includes receptionists and travel agency clerks not elsewhere classified, for example those who receive air travellers at airport, check their tickets and conduct them to aircraft or customs hall; work at an information desk in a department store and answer customers' inquiries concerning the location of particular goods and other matters.

3-95 Library and Filing Clerks

Workers in this unit group maintain library records and perform filing services.

Their functions include:

keeping records relating to the acquisition, issue and return of publications in libraries;

arranging and classifying correspondence, invoices, receipts and other documents and records.

3-95.20 Library Clerk.

Maintains library records relating to the acquisition, issue and return of books and other publications and performs related duties:

records titles and code references of books loaned, identity of borrower, date of issue and due date for return; sends out reminder notices regarding books overdue; checks incoming books and calculates charges for books overdue; keeps library catalogues and index cards up to date and in good order; arranges and replaces books in correct order on shelves.

May advise borrowers on selection of reading material. May deal with orders for new publications. May be designated according to type of library.

3-95.30 Filing Clerk.

Classifies and systematically files papers, documents and other records:

examines material for filing, such as correspondence case papers, invoices, receipts, plans or photographs and classifies it according to subject, alphabetical order or other system; places material in file appropriate to classification allotted; extracts and transfers filed documents on request and keeps records of location; compiles and maintains indices to files.

May be designated according to type of filing system or material filed.

3-99 Clerks Not Elsewhere Classified

Workers in this unit group perform miscellaneous clerical tasks not elsewhere classified. Their functions include:

compiling statistical tables;

converting information into codes and classifying information by code numbers for purposes of data-processing;

verifying and correcting printer's proofs;

operating office machines which reproduce documents by photographic, multigraph or similar means;

performing other clerical tasks such as sorting forms and marking them with identification numbers, operating office machines to sort documents for filing or to collate sets of pages, or addressing circular letters by hand.

3-99.20 Statistical Clerk.

Compiles statistical records based on routine or special sources of information:

obtains information required from special forms, or reports and publications, or by examining ledgers, records of materials used or rejected, order books and other documents; checks the information for consistency and completeness; collates data obtained or arranges it for processing; calculates totals, averages, percentages and other details and presents the data in tabular form as required; uses adding and calculating desk machines, ready reckoners, percentage tables and similar aids in making computations.

May prepare reports on source material and supply factual information to assist in interpretation of the statistical data compiled.

Workers devising and conducting statistical inquiries or evaluating results according to principles of statistical analysis are classified in minor group 0-8.

3-99.30 Coding Clerk (Data-Processing).

Determines appropriate classifications of items of information and converts data into code form for purposes of data-processing operations:

enters on completed questionnaires, forms, records, cards or other documents, opposite each item of information concerned, the relevant code numbers, letters or signs, according to coding instructions; refers unusual items to supervisor or other person in charge; passes completed work to manual processors or to card- and tape-punching machine operators.

May verify completed coding. May perform other clerical duties related to coding operations, such as transferring coded information to worksheets for use in the next phase of operations. May be designated according to trade name of computer system.

3-99.40 Proof Reader.

Compares printers' proofs with original material and marks errors for correction:

reads proof against copy sent to printer and marks errors according to an established system of marking; returns corrected proof to type composing room.

May correct proof while assistant reads aloud from original material.

3-99.50 Office Machine Operator (Reproduction Processes).

Operates office machines which reproduce copies of documents by photographic, photo-offset, multigraph or similar means or which print, on forms and envelopes, addresses and similar brief entries from prepared plates:

prepares machine for new run and loads with forms, envelopes or reproduction paper; inserts the stencil, master copy or plate in machine and adjusts as necessary; sets machine to produce the required number of copies, starts machine and observes operation, adjusting controls if necessary.

May maintain offset plate, stencil or address plate files. May be designated according to trade name of machine operated or type of processing.

3-99.90 Other Clerks.

This group includes clerical workers not elsewhere classified, for example those sorting forms or other documents by hand; making a routine inspection of documents and marking them with identification numbers; addressing circulars and envelopes by hand; operating machines which sort documents for filing or collate sets of pages of reproduced documents.

MAJOR GROUP 4

SALES WORKERS

Workers in this major group are engaged in, or directly associated with, buying and selling goods and services of all kinds and in conducting wholesale and retail businesses on their own behalf or managing them on behalf of others.

They are classified in the minor groups listed below:

4-0 Managers (wholesale and retail trade).
4-1 Working proprietors (wholesale and retail trade).
4-2 Sales supervisors and buyers.
4-3 Technical salesmen, commercial travellers and manufacturers' agents.
4-4 Insurance, real estate, securities and business services salesmen and auctioneers.
4-5 Salesmen, shop assistants and related workers.
4-9 Sales workers not elsewhere classified.

4-0 MANAGERS (WHOLESALE AND RETAIL TRADE)

Workers in this minor group plan, organise, co-ordinate and direct businesses or local branches of businesses in wholesale and retail trade on behalf of the proprietors and direct and co-ordinate buying and selling operations of the enterprise. They are classified in the unit group mentioned below:

4-00 Managers (Wholesale and Retail Trade).

Sales Managers (except wholesale and retail trade) are classified in unit group 2-19.

4-00 Managers (Wholesale and Retail Trade)

Workers in this unit group plan, organise, co-ordinate and direct businesses or local branches of businesses in wholesale or retail trade on behalf of the proprietors.

Their functions include:

planning and organising a business or a branch of a business in wholesale or retail trade;

directing workers engaged in purchasing goods and selling them to retailers, industrial, commercial or other large consumers in a wholesale business;

directing workers engaged in purchasing goods and selling them for personal or household consumption or use in a retail business;

organising and controlling the work of purchasing, sales and other staff.

4-00.20 Manager, Wholesale Trade.

Plans and organises a business or a branch of a business in wholesale trade and directs workers engaged in selling goods to retailers and to industrial, commercial or other large consumers:

analyses market information concerning current and future changes in supply and demand for goods; decides purchasing, advertising, sales and credit policies of the undertaking; organises and controls the work of supervisors and other staff; directs the engagement and training of staff.

May negotiate with major suppliers or manufacturers' agents and advise customers on current and future market trends. May organise and direct import, export, commodity agency or similar business, act as intermediary between buyers and sellers without keeping any stock of goods or buy title to domestic or foreign goods and negotiate contracts of sale thereof.

4-00.30 Manager, Retail Trade.

Plans and organises a business in retail trade and directs workers engaged in selling goods for personal or household consumption or utilisation:

analyses market information concerning current and future changes in supply and demand for goods; decides purchasing, advertising, sales and credit policies of the organisation and devises methods of sales promotion; organises and controls the work of supervisors and other staff; directs the engagement and training of staff.

May interview commercial travellers, visit showrooms and undertake buying missions on behalf of his undertaking. May manage a branch of a multiple undertaking.

4-1 WORKING PROPRIETORS (WHOLESALE AND RETAIL TRADE)

Workers in this minor group conduct businesses in wholesale and retail trade on their own behalf or in partnership and are engaged in buying and selling goods. They are classified in the unit group mentioned below:

4-10 Working Proprietors (Wholesale and Retail Trade).

4-10 Working Proprietors (Wholesale and Retail Trade)

Workers in this unit group conduct businesses in wholesale and retail trade on their own behalf or in partnership.

Their functions include:

purchasing goods of the types, qualities and quantities required;

selling goods to retailers, industrial, commercial or other establishments or to individual customers;

acting as intermediaries between buyers and sellers of goods.

4-10.20 Working Proprietor (Wholesale Trade).

Conducts a business in wholesale trade on own behalf or in partnership, buying goods and selling them to retailers and to industrial, commercial or other large consumers:

estimates needs of business and purchases or authorises the purchase of goods of the types, qualities and quantities required; supervises personnel; decides on the credit and quantity discount terms to be offered to customers.

May grade goods. May act as intermediary between buyer and seller without keeping any stock of goods. May, in small establishment, perform most or all of the tasks of *Wholesale trade salesman (4-51.20)*, take inventories and undertake own bookkeeping and correspondence. May be designated according to type of product sold.

4-10.30 Working Proprietor (Retail Trade).

Conducts a business in retail trade on own behalf or in partnership, buying goods and selling them for personal or household consumption or other use:

estimates needs of business and purchases or authorises the purchase of goods of the types, qualities and quantities required; supervises personnel; ensures that goods are well displayed and advertised and decides on credit terms to be offered to customers.

May, in small establishments, perform most or all of the tasks of *Retail trade salesman (4-51.30)*, take inventories and undertake own bookkeeping and correspondence. May be designated according to type of product sold.

4-2 SALES SUPERVISORS AND BUYERS

Workers in this minor group supervise workers engaged in selling activities and buy goods for resale or use on behalf of wholesale, retail, industrial or other establishments or institutions. They are classified in the unit groups listed below:

4-21 Sales Supervisors.
4-22 Buyers.

4-21 Sales Supervisors

Workers in this unit group supervise workers engaged in selling activities in wholesale and retail establishments or sales departments of other establishments.

Their functions include:

estimating the types, qualities and quantities of goods required by their customers and ensuring adequate stocks;

supervising travelling sales and other sales staff;

ensuring that credit and security procedures are observed.

4-21.20 Sales Supervisor (Wholesale Trade).

Supervises workers in a wholesale trade establishment engaged in buying goods for resale and selling them to retailers and to industrial, commercial or other large consumers:

under the general direction of the proprietor or manager, estimates needs of business and purchases or authorises the purchase of goods of the types, qualities and quantities required; supervises and instructs sales and other staff of the sales department in their day-to-day work; ensures that the credit and other sales policies of the undertaking are observed.

May engage staff and initiate other personnel action such as promotion, transfer, discharge and disciplinary measures. May supervise travelling salesmen in a specified territorial division.

4-21.30 Sales Supervisor (Retail Trade).

Supervises workers in a retail trade establishment engaged in buying goods for resale and selling them for personal or household consumption or other use:

under the general direction of the proprietor or manager, estimates the needs of customers and orders goods of the types, qualities and quantities required; supervises and instructs sales staff in their day-to-day work in accordance with the sales policies of the undertaking; ensures that goods are attractively and effectively displayed and that security, accounting and stock control rules and procedures are observed.

May engage staff and initiate other personnel action such as promotion, transfer, discharge and disciplinary measures. May make recommendations concerning sales promotion and pricing policies.

4-21.90 Other Sales Supervisors.

Workers in this group perform sales supervisory duties not elsewhere classified, for example those who supervise canvassing, display or demonstration activities; inspect sales activities in various branches or departments of a retail or wholesale establishment; supervise sales workers employed in the sales department of a manufacturing enterprise; inspect the activities and results of distribution agencies within a specified territorial division engaged in selling the products of an industrial, import or other undertaking; give expert advice on sales promotion methods.

4-22 Buyers

Workers in this unit group buy goods on behalf of an industrial, commercial or other organisation.

Their functions include:

buying goods for resale in wholesale and retail trade;

purchasing supplies such as raw materials, equipment or consumption goods for use in industrial plants, public institutions, government agencies or other establishments.

4-22.20 Buyer.

Buys goods for resale in wholesale and retail trade:

reviews business requirements and studies trade periodicals, manufacturers' literature and other market information on varieties, qualities and prices of goods available; interviews commercial travellers, visits showrooms or undertakes special buying missions; negotiates with suppliers on prices, credit terms, discounts for quantity and arranges delivery schedules; authorises payment of invoices.

May price items for resale. May be designated according to type of merchandise bought.

4-22.30 Purchasing Agent.

Buys machinery, equipment, raw materials, services and other supplies for use or consumption by a manufacturing, commercial, government agency or other undertaking:

ascertains requirements of the enterprise and studies trade periodicals, suppliers' literature and other market information on varieties and qualities available and prices; interviews vendors to ascertain their ability to meet organisation's specific requirements for design, performance, price and delivery; negotiates contracts, keeping within budgetary limitations; keeps records of costs, deliveries and performance and discusses defects with user departments with a view to rectification by suppliers or change in specification or change of suppliers.

May approve bills for payment.

4-3 TECHNICAL SALESMEN, COMMERCIAL TRAVELLERS AND MANUFACTURERS' AGENTS

Workers in this minor group carry out specialised technical selling activities requiring knowledge of the technology of the composition, utilisation and maintenance of the goods or equipment sold; sell specialised engineering and assimilated services; give technical information and advice to customers before and after sales; solicit orders and sell goods on a wholesale basis by visiting clients in a defined district; and act as intermediaries for sales on behalf of local or foreign manufacturers to wholesale and retail establishments. They are classified in the unit groups listed below:

4-31 Technical Salesmen and Service Advisers.

4-32 Commercial Travellers and Manufacturers' Agents.

4-31 Technical Salesmen and Service Advisers

Workers in this unit group sell, and perform specialised information duties in selling, technical products or services.

Their functions include:

selling technical equipment, supplies or services using their specialised knowledge of the technology of the composition, utilisation and maintenance of the goods or equipment sold;

advising customers on the application, installation and operation of technical equipment and other products bought.

4-31.20 Technical Salesman.

Sells products and services, such as chemical, mechanical, electrical and electronic supplies, using his specialised knowledge of the technology of the composition, utilisation and maintenance of the goods or equipment sold:

calls on architects, engineers and other potential users to explain merits of his firm's product and its application to the user's special requirements; prepares or arranges for the preparation of plans and operational specifications showing gains from proposed changes in equipment, methods or materials.

May negotiate contracts and assist in the arrangement of credit.

4-31.30 Technical Service Adviser.

Advises customers on the application, installation and operation of specialised equipment, supplies and services;

consults customer on the layout of equipment or utilisation of service; supervises or assists customer's personnel with installation of equipment and ensures operation in accordance with specification; investigates difficulties or faults arising in operation or utilisation and suggests appropriate solutions or arranges for modifications.

May train customer's personnel in maintenance or use of his firm's product or service.

4-32 Commercial Travellers and Manufacturers' Agents

Workers in this unit group sell goods on a wholesale basis in an allotted geographical area.

Their functions include:

soliciting orders and selling goods to retail industrial, wholesale and other establishments;

selling products of one or more home or foreign manufacturers to wholesale, retail and other establishments.

4-32.20 Commercial Traveller.

Solicits orders by personally visiting clients and sells goods to retailers, industrial consumers, institutional and professional establishments or wholesale organisations in an allotted geographical area:

attempts to interest prospective buyers by showing sample articles or indicating products in catalogue and pointing out merits; quotes prices, credit terms and delivery conditions, offers reductions in certain circumstances and gives information concerning probable price trends; forwards orders to office and makes reports of business transactions; studies trade periodicals and keeps himself informed of price changes and other marketing conditions.

May provide window displays or advertising signs. May collect payments for products sold. May be designated according to product sold.

4-32.30 Manufacturers' Agent.

Sells products of one or more home or foreign manufacturers to wholesale and retail establishments on a commission basis, in an allotted geographical area:

performs essentially the same duties as described under *Commercial traveller (4-32.20)*, but usually represents several manufacturers of related products, for example various items of hardware.

May display samples of goods in showroom. May be designated according to products sold. May supervise the staff of the agency.

4-4 INSURANCE, REAL ESTATE, SECURITIES AND BUSINESS SERVICES SALESMEN AND AUCTIONEERS

Workers in this minor group sell insurance, real estate, securities, business and advertising services and auction property or commodities, or perform related functions. They are classified in the unit groups listed below:

4-41 Insurance, Real Estate and Securities Salesmen.
4-42 Business Services Salesmen.
4-43 Auctioneers.

4-41 Insurance, Real Estate and Securities Salesmen

Workers in this unit group sell insurance, real estate and securities or are associated with these activities.

Their functions include:

selling life, endowment, fire, accident and other types of insurance;

selling and leasing property such as building lots, houses, apartments and estates, on a commission basis;

purchasing and selling stocks and bonds of public or private organisations for customers on a commission basis;

performing other tasks directly related to the foregoing.

4-41.20 Insurance Salesman.

Sells life, accident, endowment, fire, marine and other types of insurance:

compiles list of prospective customers from directories and other sources; interviews prospective customers, determines their insurance needs and attempts to sell suitable policies by explaining the risks covered, the premium rates and benefits; initiates arrangements for medical examination or other policy stipulations.

May collect premiums and keep records of payments. May assist in investigating claims. May be designated according to the type of insurance sold.

4-41.30 Real Estate Salesman.

Sells and leases property, such as building lots, houses, apartments and estates, on a commission basis:

acts as agent for holders of real estate available for sale or lease; estimates value of property, advises owners on current market situation and ascertains acceptable bargaining price; advertises property for sale or rent; prepares list of prospective purchasers, indicating type, location and price of property desired, and lists of properties answering client's requirements; conducts client to site or property, or arranges visit; attempts to sell or lease property by pointing out merits; assists client to compute total cost of purchase, including items such as taxes, initial and subsequent payments, mortgages, interest and legal fees.

May act as agent for clients wishing to purchase real estate or long-term leases. May draw up and submit contract for approval of purchaser and seller. May arrange for search of title. May solicit loan on behalf of purchaser. May act as agent for owner, collecting rents, arranging for maintenance of property and when necessary compelling compliance with provisions of lease by court action.

4-41.40 Securities Salesman.

Buys or sells stocks and bonds of public or private organisations for customers on a commission basis:

gives information to potential purchasers regarding stocks, bonds, market conditions and history and prospects of organisation in which investment is contemplated; purchases or sells securities in accordance with customer's orders.

May advise clients regarding investment plans or changes in holdings of securities.

4-41.90 Other Insurance, Real Estate and Securities Salesmen.

This group includes insurance, real estate and securities salesmen not elsewhere classified.

4-42 Business Services Salesmen

Workers in this unit group sell business and advertising services.

Their functions include:

selling such services as provision of credit information, address listing, printing, theft and fire protection or cleaning services;

arranging contracts for use of theatres and concerts halls for particular performances, for rental of motion picture films, or for live broadcasting of spectacles;

selling advertising services;

performing related tasks.

4-42.20 Business Services Salesman (except Advertising).

Sells one or more business services (except advertising services);

compiles and maintains lists of prospects through business and social contacts and by examining telephone, business and professional directories; interviews prospective clients and explains features and benefits of service; quotes prices and credit terms; prepares contract forms.

May collect payments or accounts.

Agents of performers or writers are classified in 1-99.90.

4-42.30 Advertising Salesman.

Sells advertising space in press and periodicals, on poster boards and elsewhere and advertising time on radio and television programmes:

visits prospective advertisers to explain merits and coverage of his firm's publication or medium; discusses client's requirements and most suitable media for obtaining best results from a given expenditure; shows sample layouts and indicates specialist services available for illustration, copywriting or other presentation.

May originate special advertising campaigns. May buy space or time for publication or presentation of agreed advertising campaign.

4-43 Auctioneers

Workers in this unit group sell property and goods by auction, value property and goods and assess losses covered by insurance policies.

Their functions include:

selling various kinds of property and goods, such as real estate, furniture, livestock, farm products and *objets d'art*, by auction;

determining the value of real estate, industrial equipment, personal and household effects, works of art, gems and other objects;

assessing the liabilities of insurance companies and underwriters for losses covered by insurance policies.

4-43.20 Auctioneer.

Sells by auction various kinds of new or used property and goods, such as real estate, furniture, livestock, farm products and *objets d'art*:

arranges place and date of auction sale; arranges order in which items are to be sold; begins auction by describing item and asking for starting bid or setting starting price; requests bids, observes buyers' signals closely, stimulates competitive bidding and repeats bids offered; closes sale of item and declares it sold to bidder offering best price.

May conduct auctions with aid of mechanical and electrical equipment. May make inventories of goods for sale and issue catalogues. May specialise in selling particular kinds of goods or property and be designated accordingly. May also carry out duties of *Appraiser (4-43.30)*.

4-43.30 Appraiser.

Determines value of real estate, industrial equipment, personal and household effects, works of art, gems and other articles, by examining them for condition and authenticity:

inspects and examines real estate or articles in question using experience and knowledge, scientific tests and original prices to arrive at a final estimate of current market value; submits estimates to buyers, auctioneers, creditors, courts of law, attorneys, insurance companies and other clients.

May specialise in appraising a particular type of article and be designated accordingly. May report on condition, origin and history of an article appraised. May assess liabilities of insurance companies or underwriters for losses covered by insurance policies.

Auctioneers who also perform duties of appraiser are classified as *Auctioneer (4-43.20)*.

4-5 SALESMEN, SHOP ASSISTANTS AND RELATED WORKERS

Workers in this minor group sell and demonstrate goods in wholesale or retail establishments or on the street, solicit orders on the street or from door to door and perform related selling tasks. They are classified in the unit groups listed below:

4-51 Salesmen, Shop Assistants and Demonstrators.
4-52 Street Vendors, Canvassers and Newsvendors.

4-51 Salesmen, Shop Assistants and Demonstrators

Workers in this unit group sell and demonstrate goods in wholesale and retail establishments.

Their functions include:

selling goods in a wholesale establishment to retailers or large-scale consumers;

selling goods to customers of a retail establishment;

dressing in clothes for sale to display them for customers in manufacturers', wholesalers' or retailers' showrooms;

demonstrating and explaining qualities and functions of goods;

performing other tasks related to the foregoing.

4-51.20 Wholesale Trade Salesman.

Sells goods in a wholesale establishment to retailers or large-scale consumers:

talks to customers on sales floor, ascertaining nature of product required; assists customer in choice by pointing out features and merits of article or by demonstrating it; quotes prices, credit terms and quantity discounts; takes orders, makes out order forms and passes them to appropriate section for action.

May arrange sales by mail or telephone. May receive payment. May be designated according to product sold.

Workers who sell goods outside the establishment in an allotted geographical area are classified as *Commercial traveller (4-32.20)*.

4-51.30 Retail Trade Salesman.

Sells goods in a retail establishment:

ascertains nature and quality of product required; assists customer in choice by demonstrating and describing characteristics of products available; packs and arranges delivery of purchases where necessary; replenishes goods on display.

May receive payment. May write invoice or docket and verify cashier's receipt. May arrange credit and value used articles taken in exchange. May take inventories of stock. May visit customers and demonstrate articles. May accept articles for repair or alteration. May be designated according to type of product sold.

4-51.40 Fashion Model.

Wears and displays clothing for sale in showrooms and other places in order to demonstrate style and other characteristics:

dresses in sample apparel of new or current styles or of type wanted by customer; models clothing before designers, buyers or customers by walking, turning and otherwise demonstrating style and other characteristics to best advantage.

May inform prospective purchasers as to model, number and price of each garment.

4-51.50 Demonstrator.

Gives demonstrations of articles for sale, in wholesale, retail and industrial establishments, at exhibitions, or in private houses:

explains merits of article and shows how it works, attempting to stimulate buying interest.

May sell articles.

4-51.90 Other Salesmen, Shop Assistants and Demonstrators.

This group includes salesmen and shop assistants not elsewhere classified, for example those who replenish stocks and assist customers in a self-service store; select goods for customers according to written or telephoned requests; conduct and assist customers in their purchasing in a self-service store; those who sell petrol, oil or other motoring requirements to customers.

4-52 Street Vendors, Canvassers and Newsvendors

Workers in this unit group sell goods or solicit orders on streets or from door to door.

Their functions include:

selling such goods as fruit, vegetables, ice-cream, coal or wood and soliciting business from door to door;

selling newspapers on streets and distributing them to regular subscribers;

performing other itinerant selling tasks.

4-52.20 Street Vendor.

Sells goods such as fruit, vegetables, ice-cream, coal or wood on street or waterway or from door to door:

loads goods on push-cart, bicycle, horse-drawn vehicle, motor vehicle or boat, or carries them; takes up position and calls out information about goods for sale or sounds signal, or goes from door to door; sells goods and receives payment.

May sell articles from a street stand.

4-52.30 Canvasser.

Solicits business for an establishment, particularly from households, by going from door to door:

explains purpose of call and gives details of goods or services the establishment can supply, quoting prices and terms; notes orders received and forwards them to office of establishment; distributes advertising literature or leaves samples.

May give demonstrations and collect payment of instalments.

4-52.40 Newsvendor.

Sells newspapers on streets or distributes them to regular subscribers:

obtains newspapers from publishing company or agents; sells or delivers newspapers and collects money; returns unsold or undelivered newspapers to supplier.

May sell newspapers from street stand.

4-52.90 Other Street Vendors, Canvassers and Newsvendors.

This group includes street vendors, canvassers and newsvendors not elsewhere classified, for example those heating foodstuffs, such as chestnuts and frankfurters, and selling them from street stands.

4-9 SALES WORKERS NOT ELSEWHERE CLASSIFIED

Workers in this minor group perform various selling and related tasks not classified elsewhere. They are classified in the unit group mentioned below:

4-90 Sales Workers Not Elsewhere Classified.

4-90 Sales Workers Not Elsewhere Classified

Workers in this unit group perform various selling tasks not elsewhere classified.

Their functions include:

lending money to customers on pledge or bonds;

selling refreshments and confectionery in places of entertainment;

performing various other selling tasks.

4-90.20 Pawnbroker.

Estimates the value of jewellery, cameras and other articles offered as pledges and lends money on deposit of the articles:

examines articles to be pledged to determine their condition and value; lends money according to pledge values, issues pawn tickets and records loans; computes interest and receives payment when pledges are redeemed; sells unredeemed pledged items.

4-90.90 Other Sales Workers.

This group includes sales workers not elsewhere classified, for example those selling refreshments and confectionery or programmes in places of entertainment.

MAJOR GROUP 5

SERVICE WORKERS

Workers in this major group direct, organise, supervise or perform catering, housekeeping, personal, protective and related services.

They are classified in the minor groups listed below:

5-0 Managers (catering and lodging services).
5-1 Working proprietors (catering and lodging services).
5-2 Housekeeping and related service supervisors.
5-3 Cooks, waiters, bartenders and related workers.
5-4 Maids and related housekeeping service workers not elsewhere classified.
5-5 Building caretakers, charworkers, cleaners and related workers.
5-6 Launderers, dry-cleaners and pressers.
5-7 Hairdressers, barbers, beauticians and related workers.
5-8 Protective service workers.
5-9 Service workers not elsewhere classified.

5-0 MANAGERS (CATERING AND LODGING SERVICES)

Workers in this minor group plan, organise, co-ordinate and direct catering and lodging services in hotels, restaurants and similar establishments on behalf of the proprietors. They are classified in the unit group mentioned below:

5-00 Managers (Catering and Lodging Services).

5-00 Managers (Catering and Lodging Services)

Workers in this unit group plan, organise, co-ordinate and direct hotels, restaurants, guest houses, cafés, bars, caravan parks and similar establishments on behalf of the proprietors.

Their functions include:

planning, organising, directing and controlling the establishment and its departments;

maintaining standards of cleanliness and service;

arranging banqueting and other special functions.

5-00.20 Hotel and Restaurant Manager.

Plans and organises a hotel and restaurant or motel on behalf of the proprietors to provide accommodation and meals for guests and directs and controls staff to ensure efficient and profitable operation:

plans, directs and controls the organisation, administration and operation of departments, such as reception, accounting, housekeeping, catering, purchasing and maintenance; establishes and maintains standards of personnel performance and services to guests; authorises expenditure, allocates funds and plans budgets for all departments; plans, in conjunction with catering and other department managers, arrangements for large-scale functions such as banquets and conventions, and for outdoor and indoor recreation for guests.

May fix room rates and determine credit policy. May hire and discharge staff. May manage lodging services aspects only, the attached bar and restaurant services being under separate management.

5-00.30 Restaurant Manager.

Plans and organises a restaurant on behalf of the proprietors to provide food and beverages for guests, and directs and controls staff to ensure efficient and profitable operation:

plans, co-ordinates and supervises activities of workers in dining-rooms, kitchen, bar and other areas; purchases food and confers with chef to plan menus; organises and supervises arrangements for banquets and other special functions; ensures that dining-room, kitchen, storage facilities and other work areas are kept clean and conform to sanitary regulations; plans entertainment for guests and engages musicians and other entertainers; adjusts complaints concerning food and service; hires, instructs and discharges staff as necessary; keeps cost and other records.

5-00.40 Ship's Purser.

Supervises and co-ordinates activities of crew members aboard ship concerned with shipboard business matters and social activities of passengers:

prepares shipping articles, crew lists, cargo manifests, ship's port clearance certificates and other official documents; maintains payroll records and pays off crews at completion of voyage; provides banking services and safekeeping of valuables for passengers; arranges scenic tours at ports of call; assists passengers in preparing customs declarations and other documents for disembarkation and making onward travel arrangements.

May supervise and co-ordinate ship's catering activities. May organise and conduct entertainments for passengers.

5-00.90 Other Managers (Catering and Lodging Services).

This group includes catering and lodging managers not elsewhere classified, for example those who manage temporary or permanent lodging facilities, such as boarding or guest houses and caravan parks; cafeterias, bars, cafés and canteens; food services in drugstores and schools; refreshment stands at sporting events, public gatherings and amusement parks.

5-1 WORKING PROPRIETORS (CATERING AND LODGING SERVICES)

Workers in this minor group conduct catering and lodging services in hotels, restaurants, boarding houses, cafés and similar establishments on their own behalf or in partnership. They are classified in the unit group mentioned below:

5-10 Working Proprietors (Catering and Lodging Services).

5-10 Working Proprietors (Catering and Lodging Services)

Workers in this unit group conduct catering and lodging services on their own behalf or in partnership and provide accommodation and meals for guests.

Their functions include:
maintaining records and keeping accounts of the undertaking;
ordering supplies;
receiving guests and allocating accommodation;
supervising employees engaged in the provision of food and personal services or personally performing equivalent duties.

5-10.20 Working Proprietor (Hotel and Restaurant).

Operates a hotel and restaurant or motel on own account or in partnership, to provide accommodation and meals for guests:

establishes and maintains standards of reception, accommodation and catering; determines room rates, credit policy and type of patronage to be solicited; ensures that dining-room, kitchen, storage and other facilities are kept clean and conform to sanitary regulations; plans hotel budget and authorises expenditure; purchases food, equipment and supplies.

May hire, instruct and discharge staff. May process reservations, receive payment from guests and issue receipts.

5-10.30 Working Proprietor (Restaurant).

Operates a restaurant on own account or in partnership, to provide food and beverages for guests:

plans, co-ordinates and supervises activities of workers in dining-room, kitchen, bar and other areas; purchases food, equipment and supplies and plans menus; organises and supervises arrangements for banquets and other special functions; ensures that dining-room, kitchen, storage facilities and other work areas are kept clean and conform to sanitary regulations; plans entertainment for guests and engages entertainers; hires, instructs and discharges staff as necessary; keeps cost and other records.

5-10.40 Working Proprietor (Guest House).

Operates a guest house on own account or in partnership, to provide temporary or permanent accommodation for guests:

advertises vacancies and rents rooms; purchases food, equipment and supplies and plans menus; collects rents and pays bills; directs and supervises workers engaged in cleaning rooms, issuing linen and cooking and serving meals; ensures that dining-room, kitchen, storage facilities and other work areas are kept clean and conform to sanitary regulations; hires, instructs and discharges workers as necessary; keeps cost and other records.

May participate in cooking and serving meals and cleaning rooms. May arrange repair work and maintenance of building.

5-10.50 Working Proprietor (Café, Bar and Snack Bar).

Operates a café, bar or snack bar on own account or in partnership to sell food or alcoholic and other beverages to customers:

directs and supervises workers engaged in serving customers; purchases food, liquors, wines and other beverages, equipment and supplies; ensures that premises, equipment and work areas conform to sanitary and safety regulations; supervises workers selling alcoholic beverages to ensure observance of police and other regulations; hires, instructs and discharges workers as necessary.

May prepare and serve meals, snacks and alcoholic and other beverages.

5-10.90 Other Working Proprietors (Catering and Lodging Services).

This group includes working proprietors of catering and lodging services not elsewhere classified, for example those who operate rooming houses which do not supply meals, caravan parks, cafeterias and canteens.

5-2 HOUSEKEEPING AND RELATED SERVICE SUPERVISORS

Workers in this minor group organise, supervise and carry out housekeeping functions in enterprises, institutions and private households and on board ships. They are classified in the unit group mentioned below:

5-20 Housekeeping and Related Service Supervisors.

5-20 Housekeeping and Related Service Supervisors

Workers in this unit group organise, supervise and carry out housekeeping functions in hotels, clubs and other institutions, on board ships and in private households.

Their functions include:

organising and supervising the work of domestic staff in hotels, hospitals and similar establishments and in private households;

controlling the purchase, storage and issue of supplies and supervising domestic service in hotels, restaurants, clubs and on board ships;

supervising the serving of food and beverages and performing related services in private households;

organising and supervising domestic staff and supervising general welfare and conduct of individuals in residential institutions;

performing other organising and supervisory functions in connection with housekeeping work.

5-20.20 Housekeeper (except Private Service).

Plans, organises and supervises the work of domestic staff in hotels and other institutions:

hires, trains, assigns duties to and supervises workers such as chambermaids, housemen, laundry workers and seamstresses; ensures prescribed standards of efficiency and cleanliness are met; purchases or assists in purchasing supplies; examines condition of rooms, reports on repairs needed and suggests improvements; checks housekeeping accounts and takes inventories of bed linen and other articles.

May prepare housekeeping budget.

5-20.30 Housekeeper (Private Service).

Organises and supervises the work of domestic staff in private households:

supervises staff and ensures prescribed standards of efficiency and cleanliness are met; hires, assigns duties to, trains, disciplines and discharges domestic staff.

May buy and issue supplies and housekeeping equipment, record expenditure on supplies, upkeep of home and service. May prepare and serve meals and perform cleaning and other domestic tasks.

5-20.40 House Steward.

Controls the purchase, storage and issue of foodstuffs and kitchen supplies and supervises and co-ordinates the work of pantry, storeroom and kitchen staff not engaged in cooking in hotels, restaurants and clubs:

purchases food supplies and equipment and checks them for quality and quantity; engages, trains and discharges workers; inspects kitchen and storerooms and ensures prescribed standards of efficiency and cleanliness are maintained and comply with safety regulations; supervises storage and issue of supplies and cleaning of china, silver and glassware; administers controls to safeguard against theft and wastage; keeps records of purchases and issues, and approves invoices or bills for payment.

May plan and price menus.

5-20.50 Chief Steward (Ship).

Plans, co-ordinates and supervises the activities of crew engaged in housekeeping and meal serving on board passenger or cargo vessels:

receives, checks and issues ship stores, such as linen, foodstuffs, galley supplies and equipment; supervises chief cook, baker and galley ratings, as well as messroom, cabin and deck stewards; keeps records concerning ship's catering department.

May perform some of the tasks of *Ship's purser (5-00.40)* on small passenger ships or combined freighter-passenger ships.

5-20.60 Housekeeping Matron.

Organises and supervises the work of domestic staff and supervises the general welfare and conduct of individuals in residential institutions:

supervises domestic staff and sees that prescribed standards of efficiency and cleanliness are met; supervises conduct and behaviour of residents; assists in cases of minor injury or illness by performing tasks such as preparing bandages, taking temperature and administering medicines; requisitions, issues and may purchase household and first-aid supplies.

5-20.90 Other Housekeeping and Related Service Supervisors.

This group includes housekeeping supervisors not elsewhere classified, for example those who perform supervisory tasks in establishments providing only shelter, such as tourist camps and lodging houses; act as butler in private households.

5-3 COOKS, WAITERS, BARTENDERS AND RELATED WORKERS

Workers in this minor group supervise and perform various kinds of work related to the preparation and cooking of meals and the serving of food and beverages. They may be employed in hotels or other commercial establishments, in institutions or in private households or on board ships or railway trains. They are classified in the unit groups listed below:

5-31 Cooks.
5-32 Waiters, Bartenders and Related Workers.

5-31 Cooks

Workers in this group prepare and cook foodstuffs in hotels, restaurants, other public eating places, aboard ships, on railway trains and in private households.

Their functions include:

planning meals, preparing and cooking foodstuffs;

performing various other tasks related to the preparation and cooking of food.

5-31.20 Head Cook.

Plans meals and supervises and co-ordinates work of cooks and kitchen helpers in hotels, restaurants or other establishments and on railway trains:

plans daily menu taking into account probable number of guests, popularity of dishes and need to provide variety and food costs, and assigns prices to items; supervises cooks and kitchen helpers engaged in preparing and cooking meals and serving portions; gives instructions about sizes of portions and types of garnishing; creates special dishes and develops recipes; requisitions food supplies and kitchen equipment and checks them for quality and quantity; engages, trains and discharges kitchen personnel.

Ship's cook is classified in 5-31.50.

5-31.30 Cook, except Private Service.

Prepares, seasons and cooks soups, meats, vegetables, desserts and other foodstuffs for consumption in hotels, restaurants, railway dining-cars, clubs, schools, cafeterias and other establishments:

fries, broils, roasts, steams or boils meats, fish, vegetables and other food; prepares salads, sandwiches, cakes, fruit juices and other cold foods; supervises preparation of foodstuffs for cooking or eating raw; supervises cleaning up and dishwashing in kitchen.

May specialise in preparing a particular type of food, such as meat, salad, pastry or vegetables and be designated accordingly.

5-31.40 Cook, Private Service.

Prepares and cooks meals in private households:

plans menu according to own judgment or instructions; prepares and cooks vegetables, meats, salads, desserts and other dishes; cleans or supervises the cleaning of kitchen and cooking utensils.

May perform special cooking duties such as preserving and canning fruits and vegetables, making jellies and preparing fancy dishes. May prepare special foods for diets. May serve meals.

5-31.50 Ship's Cook.

Prepares and cooks meals on ships:

performs tasks similar to those of *Cook (except private service) (5-31.30)* but works on ships.

May cook and serve meals to ship's crew only and be designated accordingly.

5-31.90 Other Cooks.

This group includes cooks not elsewhere classified, for example those who prepare special foods for diets; prepare, cook and serve food on camp sites for construction, mineral exploration, farm and other workers; perform various tasks in preparation of food such as cleaning and peeling vegetables.

5-32 Waiters, Bartenders and Related Workers

Workers in this unit group serve food and beverages in commercially operated dining and drinking places, clubs, institutions and canteens, on board ships and on railway trains.

Their functions include:

serving food and beverages;

advising on the choice of wines and serving them;

serving alcoholic and other drinks at a bar;

performing various other tasks relative to the foregoing.

Aircraft cabin attendant is classified in unit group 5-99.

5-32.10 Waiter, General.

Serves food and beverages in commercially operated dining places, clubs, institutions and canteens:

prepares tables or counters for meals with clean linen, silverware, glasses, condiment holders and flowers; hands menu to customer, answers questions about food and beverages and makes suggestions if required; writes order on check or memorises it and orders food from kitchen; serves food; presents bill for payment or for signature by customer; removes, or has removed, soiled table linen, dishes, glasses and silverware.

May serve and pour out wine or other beverages.

5-32.20 Head Waiter.

Takes charge of dining-room, restaurant or section thereof in hotels, restaurants, clubs, institutions and similar commercial establishments, on board ships and on railway trains, supervising and co-ordinating the work of employees engaged in providing services to diners:

supervises and co-ordinates work of dining-room employees; arranges table reservations and parties for guests, greets and escorts them to tables; ensures that standards of food and service specified are maintained and adjusts complaints about food or service; hires and trains dining-room staff.

May take guests' orders and pass them to waiters. May plan and carry out arrangements for banquets and assist in preparing menus.

5-32.30 Waiter, Formal Service.

Serves food and beverages to guests in hotels, restaurants and clubs, working in a formal setting and paying special attention to established rules of service:

checks table setting; presents menu to guests and suggests dishes and appropriate wines, if required; writes order on check or memorises it; relays order to kitchen and serves dishes from kitchen or service bar; garnishes and decorates dishes preparatory to serving; serves guests from chafing dish at table; presents bill for payment or signature by guest; removes, or has removed, soiled linen, dishes and silverware.

May carve meats and prepare *flambé* dishes at table.

5-32.40 Wine Waiter.

Advises on the selection of wines and serves them in commercially operated dining and drinking places and in clubs and institutions:

presents guests with wine list, answers questions concerning vintage and other characteristics of wines and advises guests about the wines suitable for various dishes; takes order, selects wine and ensures that it has the required temperature; places glasses and pours out wine, refilling glasses when necessary.

May present bill for payment or for signature by guest. May also serve other beverages.

5-32.50 Bartender.

Serves alcoholic and non-alcoholic drinks at a bar:

mixes various ingredients to make standard or special types of drinks according to orders; serves drinks.

May receive payment. May take charge of bar, requisition supplies and keep bar stock records. May serve snacks. May wash and dry glasses.

5-32.90 Other Waiters, Bartenders and Related Workers.

This group includes waiters, bartenders and related workers not elsewhere classified, for example those who arrange tables and chairs; show customers to seats; present *hors-d'œuvres* and desserts to tables for selection by guests; remove used linen and dishes from tables; wash and dry glasses and clean bars.

5-4 MAIDS AND RELATED HOUSEKEEPING SERVICE WORKERS NOT ELSEWHERE CLASSIFIED

Workers in this minor group provide personal and housekeeping services in private households, hotels and aboard ships, in public conveyances and other establishments. They are classified in the unit group mentioned below:

5-40 Maids and Related Housekeeping Service Workers Not Elsewhere Classified.

5-40 Maids and Related Housekeeping Service Workers Not Elsewhere Classified

Workers in this unit group provide personal and housekeeping services in private homes, hotels, and aboard ships, in public conveyances and other places.

Their functions include:

cleaning rooms, cooking and serving meals and performing other duties in private households;

attending to employer's personal needs and keeping personal effects in good order;

cleaning and servicing public, guest and bath rooms and performing various related tasks for guests in hotels and similar establishments;

taking care of general needs and comfort of passengers on board ships;

caring for costumes of actors in theatres and motion picture and television studios;

performing various other tasks related to the provision of comfort in private households or public establishments.

5-40.20 Housemaid.

Cleans rooms, prepares food and serves meals, washes dishes and performs additional domestic duties in private households:

dusts and polishes furniture, sweeps and cleans floors and floor coverings and washes windows; makes beds and changes linen; washes, pares, cuts and otherwise prepares food for cooking or eating raw; prepares beverages, salads and desserts; washes dishes and cleans silverware; sets table and arranges chairs in dining-room and serves food; washes linen and other textiles by hand or machine and mends and irons them; performs additional duties such as answering telephone and doorbell, feeding pets and purchasing food and other supplies.

May cook meals, bake cakes and pastries and perform other cooking work.

Workers who perform cleaning and related duties only are classified as *Charworker (5-52.20)*.

5-40.30 Personal Maid, Valet.

Attends to employer's personal needs and keeps wardrobe and personal effects in good order, performing a variety of services:

brushes, cleans, mends, irons and lays out employer's clothing; assists employer in bathing, dressing and making toilet; keeps employer's bedroom, dressing room and bathroom tidy; packs and unpacks clothing; mixes and serves drinks.

May give body and facial massages, and shave employer. May prepare and serve meals.

5-40.35 Nursemaid.

Takes care of children and oversees their daily activities:

assists children in bathing and dressing; feeds children; takes children outdoors for recreation and plays games with them; maintains order in children's bedrooms and playroom; assists children to prepare for bed; entertains children by reading or storytelling.

May mend, wash and iron children's clothes. May perform household duties not related to child care.

5-40.40 Companion.

Provides companionship and performs personal services for employer:

participates in conversation, reading, hobbies, sports and other forms of recreation; reminds employer of social engagements and accompanies employer on social visits; assists in entertaining visitors in employer's home; accompanies employer in travelling, attending to all arrangements.

May assist in bathing, dressing and toilet, prepare and serve foods or diet. May give instructions to other domestic workers.

5-40.50 Chambermaid.

Cleans and services guest rooms in hotels or other lodging establishments:

makes beds and changes linen; removes rubbish and maintains cleanliness of furnishings; cleans bathrooms; replenishes supplies of towels, soap, stationery and other items.

May clean and service public rooms.

5-40.55 Hotel Concierge.

Performs a variety of tasks for guests in hotels and similar establishments, especially at arrival and departure:

controls issue and return of hotel guest-room keys; helps guests with baggage; receives and distributes mail, telegrams and packages or instructs bell-boy to deliver them to guest rooms; supplies information about entertainment, restaurants, transportation and other matters.

May operate hotel switchboard, sell tobacco, stamps and newspapers and attend small gift shop. May let rooms and receive payment of bills.

Concierge (apartment house) is classified in 5-51.20.

5-40.60 Ship's Steward.

Takes care of general needs and comfort of ship's passengers:

keeps cabins in order, makes beds and berths and changes linen; assists passengers on deck or in lounge by arranging chairs and rugs and running errands as requested; serves beverages in clubroom or smoke-room; serves meals in cabin on request.

May be designated according to duties performed or to class of passengers served.

Ship's stewards mainly engaged in serving food or beverages are classified as *Waiter (general) (5-32.10)*.

5-40.70 Wardrobe Mistress (Stage and Studio).

Cares for costumes of members of theatrical, television or motion picture production cast:

examines costumes and cleans and mends them as necessary; presses costumes; refits costume if required; aids actor or actress to don complicated costumes.

5-40.90 Other Maids and Related Housekeeping Service Workers.

This group includes other maids and related housekeeping service workers not elsewhere classified, for example those who assist in attending children in schools and institutions; take care of needs and comfort of train and bus passengers; render valet and other services to guests and clients of a hotel or other establishments.

5-5 BUILDING CARETAKERS, CHARWORKERS, CLEANERS AND RELATED WORKERS

Workers in this minor group take care of and clean windows, building interiors, equipment and furniture. They are classified in the unit groups listed below:

5-51 Building Caretakers.
5-52 Charworkers, Cleaners and Related Workers.

5-51 Building Caretakers

Workers in this unit group take care of apartment houses, office buildings, churches and other buildings and maintain them in an orderly and clean condition.

Their functions include:

attending to the operation of an apartment house as representative of owner or managing agent;

keeping apartment house, office or similar building in clean and orderly condition and operating furnaces or boilers to provide heat and hot water for tenants;

taking care of interior and furnishings of churches;

performing similar tasks in other establishments.

5-51.20 Concierge (Apartment House).

Attends to the operation of an apartment house as representative of the owner or managing agent:

supervises and participates in the cleaning, repair and maintenance of the building and its equipment; maintains safety protection for tenants and public and eliminates fire or other hazards; provides special services such as arrangements for additional lighting, heating and ventilating equipment; deals with complaints of tenants and regulates conduct of tenants in such matters as noise and misuse of property; keeps record of labour and material costs for operating building and issues reports to owner or agent.

May advertise vacancies, show empty apartments to prospective tenants and collect rents. May supervise workers engaged in cleaning and maintaining building and its equipment. May perform some duties of *Janitor (5-51.30)*.

5-51.30 Janitor.

Keeps apartment house, hotel, office building or similar building in clean and orderly condition and operates furnaces and boilers to provide heat and hot water for tenants:

sweeps, scrubs and mops public parts of building; empties tenants' garbage cans and disposes of refuse and ashes; tends furnace and boiler by stoking fuel and removing ashes or by regulating flow of oil or gas; replaces light bulbs and fuses and makes minor repairs to installed equipment; clears footpaths of snow and debris.

May grease elevator slides and clean elevator pits. May perform some duties of *Concierge (apartment house) (5-51.20)*.

5-51.40 Verger.

Takes care of interior and furnishings of a church:

directs or participates in the cleaning and heating of church; prepares church for services; takes care of vestments and sacred vessels.

May assist in services, keep records and conduct tourists and other visitors.

5-51.90 Other Building Caretakers.

This group includes building caretakers not elsewhere classified, for example those who take care of important monuments and historical buildings and of establishments such as clubs, institutes and dance halls.

5-52 Charworkers, Cleaners and Related Workers

Workers in this unit group clean the interiors, windows and chimneys of buildings.

Their functions include:

cleaning and keeping in an orderly condition the interiors of public buildings, offices, factories, commercial establishments, apartment and private houses;

cleaning windows in buildings;

removing soot from flues, chimneys and connecting pipes;

performing other cleaning tasks similar to the foregoing.

5-52.20 Charworker.

Cleans and keeps in orderly condition the interiors of public buildings, offices, commercial establishments, and apartment and private houses:

sweeps, scrubs and polishes floors and disposes of waste or litter; cleans carpets and rugs with brush, beater or vacuum cleaner; polishes fixtures, fittings and other metal objects; dusts furniture and office equipment; cleans kitchens, bathrooms and toilets.

May assist with laundry, ironing and other household tasks.

5-52.30 Window Cleaner.

Cleans windows in buildings:

washes window with water, cleaning powder or solution, using brush, sponge, or cloth; dries window with squeegee, cloth or chamois skin.

May clean showcase glass, mirrors and light shades. May work above the ground floor and wear safety belt.

5-52.40 Chimney Sweep.

Removes soot from flues, chimneys and connecting pipes:

when cleaning flue removes smoke pipe connecting furnace to flue, cleans pipe with long-handled brush, and replaces pipe; when cleaning chimney closes fireplace openings and other household outlets, lowers weighted bag down flue which, when withdrawn, expands and scrapes soot from chimney walls; or brushes interior of chimney by pushing and pulling a long-handled brush through chimney or lifting and lowering a weighted brush attached to a rope; cleans chimney pot with vacuum cleaner.

May clean furnaces and boilers, using similar cleaning methods.

5-52.90 Other Charworkers, Cleaners and Related Workers.

This group includes charworkers, cleaners and related workers not elsewhere classified, for example those who perform routine tidying-up and lifting duties required in hotel housekeeping; clean walls and ceilings with sponge and soapy water or chemical solution; sweep house yards and other appurtenances; clean railway passenger coaches, buses, trams and aircraft.

Cleaners of buildings by sandblasting or steam are classified in unit group 9-59.

5-6 LAUNDERERS, DRY-CLEANERS AND PRESSERS

Worker in this minor group launder, dry clean, and press clothing, textile fabrics and similar articles. They are classified in the unit group mentioned below:

5-60 Launderers, Dry-Cleaners and Pressers.

5-60 Launderers, Dry-Cleaners and Pressers

Workers in this unit group launder, dry-clean and press clothing, textile fabrics and similar articles.

Their functions include:

washing, drying and ironing in laundry or in private houses;

operating washing or dry-cleaning machines;

dry-cleaning articles by hand;

removing spots and stains;

smoothing and shaping garments or other textile articles by hand or machine pressing;

performing other related tasks.

Workers who dye garments for customers are classified in unit group 7-56.

5-60.10 Launderer (General).

Performs duties such as washing, drying and ironing clothing, textile fabrics and similar articles in a laundry or in private house:

sorts soiled articles according to type and treatment to be given; washes articles by machine or by hand; dries articles by machine, by hanging them in a drying room or the open air, or by placing them on heated metal forms; irons articles with heated hand iron or with pressing machine.

May work with minimum of equipment and wash articles in rivers or troughs. May receive articles, mark them for identification and sort them, or pack finished articles for delivery to customers.

5-60.20 Laundering-Machine Operator.

Operates mechanical equipment to wash clothing, textile fabrics and similar articles:

places articles in drum of machine; operates valve to fill machine with water to prescribed level; adds soap and other cleansing agents to water; opens valve to admit steam into machine to heat water and maintain desired temperature; fastens cover and operates controls to rotate drum or agitate contents; drains water from machine and refills it as required to rinse articles; stops machine and removes articles, packs them into a hand truck or drying machine.

May sort articles according to colour, condition and type of material.

5-60.30 Dry-Cleaning Machine Operator.

Operates mechanical equipment to dry-clean, with a chemical solution, clothing, textile fabrics and similar articles:

places article in drum of machine and fastens cover; operates valves to feed chemical solution into machine; operates controls to rotate drum or agitate contents; stops cleaning operation and drains off solution; opens machine, removes articles and packs them into hand truck.

May sort articles according to colour and condition and type of material and remove spots or stains by rubbing them with solvent. May filter solution after use to make it fit for re-use.

5-60.40 Dry-Cleaner (Hand).

Cleans, by hand and with a chemical solution, clothing, textile fabrics, leather goods and similar articles:

examines articles to ascertain condition and type of material and decides on type of treatment to be given; lays article on table, treats with chemical solution and rubs or brushes the parts most soiled; immerses article in solution for required period; rinses article in fresh solution and allows it to dry.

May clean upholstered furniture.

5-60.50 Spotter (Dry-Cleaner).

Removes, with chemical solution or substance, spots and stains from clothing, textile furnishings, leather goods and similar articles:

examines article for condition and identifies spots or stains; lays article on table and removes spot by rubbing or brushing it with chemical solution.

May wash article before removing spot. May be designated according to kind of material worked on.

5-60.60 Laundry Pressing-Machine Operator.

Smooths and shapes clothing, textile furnishings and similar articles by means of a pressing machine:

arranges material on padded table of machine; pulls pressing head of machine on to surface of material; operates pedals to control pressure on material, flow of steam through material and vacuum for drawing away moisture; raises pressing head, rearranges material and repeats process until pressing is complete.

May specialise in one or more types of pressing and be designated accordingly.

5-60.70 Presser (Hand).

Smooths and shapes clothing, textile fabrics and similar articles by pressing with heated flat-iron:

arranges material on ironing-board; moistens material before or during pressing; moves iron over material, applying necessary heat and pressure to obtain desired effect.

May specialise in one or more types of pressing and be designated according to garment or article ironed.

5-60.90 Other Launderers, Dry-Cleaners and Pressers.

This group includes launderers, dry-cleaners and pressers not elsewhere classified, for example those who mark for identification articles received for treatment; sort articles according to type and colour of material and fastness of dye; wash delicate or excessively soiled articles by hand; treat articles with a starch solution; press articles with a mangle; clean carpets with a soap or chemical solution.

5-7 HAIRDRESSERS, BARBERS, BEAUTICIANS AND RELATED WORKERS

Workers in this minor group cut and dress hair, apply cosmetics and make-up, and perform related tasks to improve the appearance of individuals. They are classified in the unit group mentioned below:

5-70 Hairdressers, Barbers, Beauticians and Related Workers.

5-70 Hairdressers, Barbers, Beauticians and Related Workers

Workers in this unit group cut and dress hair, apply cosmetics and make-up, and give other kinds of treatment to individuals to improve their appearance.

Their functions include:

cutting, washing and dressing women's hair and performing other personal services incidental to hairdressing;

cutting men's hair, shaving, trimming and giving other related treatments;

giving various forms of beauty treatment;

cleaning, shaping and polishing finger and toe nails;

applying make-up to faces of actors and other stage and studio performers;

attending to clients taking baths;

performing various other tasks related to the foregoing.

5-70.20 Women's Hairdresser.

Cuts, washes, tints and waves hair and performs other personal services incidental to women's hairdressing:

cuts and shapes hair according to instructions of client or according to a particular style; washes, rinses and dries hair, using special shampoos and solutions as necessary; bleaches, dyes or tints hair; waves hair by wrapping it round curlers, adding wave solutions, applying heat and performing othe tasks to obtain the required effect.

May give scalp treatment to customers. May clean, shape and polish finger nails. May treat natural wavy hair to straighten it.

5-70.30 Barber-Hairdresser.

Cuts hair, shaves and trims beards and performs other personal services incidental to barbering:

cuts and shapes hair according to instructions of customer or according to a particular style; shampoos, dries and re-combs hair, applying tonic on request; gives scalp treatment; shaves customers, trims beards and moustaches and gives facial massages.

May tint, dye and wave hair.

5-70.40 Beautician.

Gives various forms of beauty treatment to customers:

examines customer's skin and suggests suitable treatment; applies lotions, creams and packs to stimulate circulation, lubricate tissues and remove wrinkles and lines; massages face, neck, arms, legs or other parts of body; gives treatment for superficial skin blemishes; removes superfluous hair by various methods; shapes, colours and otherwise treats eyebrows and eyelashes; applies cosmetics and advises on suitable make-up.

May cut, comb and wave hair according to customer's instructions or according to a particular style, tint or dye hair, and give scalp treatment. May clean, shape and polish finger nails. May prepare special cosmetics for individual clients and sell cosmetics.

5-70.50 Manicurist.

Cleans, shapes and polishes finger and toe nails:

applies liquid polish-remover to take off old nail polish; files nails to shape; softens nail cuticles with lukewarm water and oil and pushes back cuticle of each nail with cuticle pusher; trims cuticle; smooths edges with emery board; applies polish to nails with small brush; cleans and sterilises equipment.

5-70.60 Make-Up Man (Stage and Studio).

Applies make-up to faces of actors and other performers to improve or alter their appearance for studio or stage production;

examines casting list and requisitions wigs, beards and other materials needed; applies make-up, such as grease paint, rouge, lipstick, face powder, wigs and beards to impart the desired facial characteristics; issues instructions to hairdresser as to style of hairdressing required.

5-70.70 Bath Attendant.

Attends to clients taking baths and administers elementary massage:

prepares water, steam or other kind of bath for client and attends client during bathing; shows client to rubbing bench after bath; rubs, kneads and slaps body to remove dead cuticle, clean the pores and stimulate circulation; rubs client's body with salt, alcohol or other substance to cleanse skin further; gives client a shower or washes him with hose.

5-70.90 Other Barbers, Hairdressers, Beauticians and Related Workers.

This group includes barbers, hairdressers, beauticians and related workers not elsewhere classified, for example those who suggest hair styles most becoming to individual customers; wash and rinse hair; fit wigs according to customers' requirements.

5-8 PROTECTIVE SERVICE WORKERS

Workers in this minor group protect individuals and property against hazards and enforce law and order. They are classified in the unit groups listed below:

5-81 Fire-Fighters.
5-82 Policemen and Detectives.
5-89 Protective Service Workers Not Elsewhere Classified.

5-81 Fire-Fighters

Workers in this unit group extinguish fires, eliminate fire hazards and protect property at fire sites.

Their functions include:

fighting fires as members of a public or private firefighting force;

detecting and eliminating or reducing fire hazards in industrial plants or other establishments;

protecting and salvaging goods during and after fires;

preventing or extinguishing fires in crashed or damaged aircraft and rescuing crew and passengers;

performing other related duties.

Forest fire-fighters are classified in unit group 6-32.

5-81.10 Fire-Fighter (General).

Fights fires as a member of a public fire-fighting force:

rides on special fire-fighting vehicle or boat to scene of fire; connects hose and directs jet of water or chemicals on fire, or uses portable fire-extinguisher in places not accessible with hose; demolishes parts of buildings or other structures as necessary, to reach and combat fire; rescues trapped persons and administers artificial respiration to those overcome by heat or smoke; performs other services during emergencies, using specialised equipment where necessary, for example rescuing people in danger as a result of flood or storm, and extricating persons or animals from places not easily accessible.

Forest Fire-Fighter is classified in unit group 6-32.

5-81.20 Fire-Prevention Specialist.

Detects and eliminates or reduces fire hazards in industrial plants and other establishments:

inspects fire-extinguishing and fire-protection equipment at regular intervals; inspects work and storage areas, and notes and investigates conditions and practices which are likely to cause fires, using instruments and making special tests to determine such conditions as temperature and pressure; reports findings and makes suggestions for repairing and replacing fire-extinguishing and fire-protection equipment and for eliminating undesirable conditions.

May establish and operate fire-safety programme.

5-81.30 Fire-Salvage Specialist.

Protects and salvages goods during and after fires:

accompanies or follows fire-fighting crew to fire and removes goods from threatened area if possible; prevents further damage to furniture, fixtures and goods in burned building by covering them with tarpaulins or other material and by removing water from area; guards premises.

5-81.40 Aircraft Accident Fire-Fighter.

Prevents or extinguishes fires in crashed or damaged aircraft and rescues crew and passengers:

sprays runway with chemical foam to reduce danger of explosion on impact when disabled aircraft are about to make emergency landings; drives to scene of emergency landing, crash or other accident and sprays aircraft with chemical agents to prevent or extinguish fire; rescues crew and passengers from aircraft, using flame-cutting and other special equipment as necessary, and renders first aid to injured; removes or neutralises dangerous cargoes on crashed or damaged aircraft.

5-81.90 Other Fire-Fighters.

This group includes fire-fighters and related workers not elsewhere classified, for example those who serve as members of fire-fighting crews in industrial establishments and are qualified to fight special types of fires and use special equipment; serve in fire-fighting groups sponsored by private individuals or companies to protect specified property; investigate fire sites to determine cause of fire.

5-82 Policemen and Detectives

Workers in this unit group maintain law and order, prevent and solve crimes and enforce laws and regulations.

Their functions include:

maintaining law and order;

protecting persons and property from hazards and unlawful acts;

discovering facts connected with the prevention and solution of crimes and arresting persons for contraventions of the law.

5-82.20 Policeman.

Maintains law and order, protects persons and property from hazards and unlawful acts and arrests persons for contraventions of the law:

familiarises himself with area and persons living in it, and notes suspicious persons and establishments; performs services such as patrolling assigned area, directing traffic, assuming authority in case of accident, rendering first aid and making necessary investigations, maintaining order at fires, inspecting licensed places of public assembly, and providing information of a general nature; arrests or assists in arrest of contravenors of the law; keeps records, makes reports of activities and gives evidence in courts.

May be designated according to type of duty performed, means of transportation, or type of area patrolled. May work in co-operation with *Detective (5-82.30)*.

5-82.30 Detective.

Uncovers facts concerned with the prevention and solution of crimes and arrests persons for the contravention of the law:

frequents haunts of criminals to learn their habits, associations, characteristics, aliases and other personal information and to detect planned crime; investigates circumstances of a particular case, questions persons concerned and examines scene of crime to obtain clues and other evidence; takes statements and makes regular reports of investigations; arrests or assists in arrest of suspects; gives evidence in court.

May be concerned with the investigation of particular types of crimes, such as automobile theft, homicide and illegal sale and use of narcotics. May work in co-operation with *Policeman (5-82.20)*.

5-82.40 Private Police Guard.

Polices property or parts of establishments, such as industrial plants, banks or museums to prevent theft, violence, infractions of rules or other irregularities:

patrols area and keeps watch for suspicious persons or activities; takes action to prevent violence or disturbances.

May make arrests if authorised. May convey or guard messengers conveying valuables to and from banks or other establishments or on means of transport.

Watchman is classified in 5-89.40.

5-89 Protective Service Workers Not Elsewhere Classified

Workers in this unit group perform miscellaneous tasks in maintaining law and order and protecting property and are not elsewhere classified.

Their functions include:

conducting private investigations for commercial or other establishments and individuals;

watching inmates of gaols, reformatories or penitentiaries, seeing to their needs and maintaining discipline;

guarding industrial plant, warehouse or other property against fire, theft and illegal entry;

performing related tasks.

5-89.20 Private Inquiry Agent.

Conducts private investigations for commercial or other establishments or for individuals:

investigates shoplifting, theft, dishonesty or other undesirable conduct among employees or customers of a business establishment or other private organisation; makes inquiries concerning conduct of persons and watches suspected persons; makes reports of investigations.

May make arrests if authorised.

5-89.30 Prison Guard.

Watches inmates of gaol, reformatory or penitentiary, sees to their needs and maintains discipline:

searches arriving prisoners and puts their valuables in safe keeping; escorts prisoners to cells and locks them in; makes periodic inspection tours of cells; supervises prisoners at work, during meals and exercise periods; patrols prison areas and walls to prevent escape.

May serve meals to prisoners.

5-89.40 Watchman.

Guards industrial plant, warehouse or other property against fire, theft and illegal entry:

makes periodic inspection tours about buildings and grounds, examining doors, windows and gates to see that they are properly secured and have not been tampered with, and watches for other irregularities such as broken waterpipes and fire hazards; registers at regular stations to record the making of inspection rounds at specified times.

May perform other duties, such as sweeping floors or firing boilers. May be designated according to type of property guarded.

Private police guard is classified in 5-82.40.

5-89.90 Other Protective Service Workers.

This group includes other protective service workers not elsewhere classified, for example those who keep watch in a central installation equipped to receive automatic alarm; maintain order in courtrooms; patrol beaches and swimming pools to prevent accidents and to rescue bathers from drowning; perform various underwater tasks generally connected with salvage work or recovering dead bodies.

5-9 SERVICE WORKERS NOT ELSEWHERE CLASSIFIED

Workers in this minor group perform various service tasks not elsewhere classified. They are classified in the unit groups listed below:

5-91 Guides.
5-92 Undertakers and Embalmers.
5-99 Other Service Workers.

5-91 Guides

Workers in this unit group escort individuals and groups on travel tours, sightseeing visits and excursions.

Their functions include:

escorting groups of tourists and looking after their comfort;

accompanying tourists on sightseeing tours and describing points of interest;

providing other guide services to visitors and travellers, such as organising and conducting mountain-climbing, hunting or fishing excursions.

5-91.20 Travel Guide.

Escorts groups of tourists travelling by motor bus, ship or other means of transportation over pre-planned route:

assists tourists with travel arrangements, such as visas, passports and health certificates; makes arrangements for meals and accommodation en route; points out places of interest en route and gives brief historical or other commentary; plans or assists tourists to plan individual sightseeing trips en route; performs other duties to help tourists such as handling baggage, sending messages, acting as interpreter and advising on customs duties and other regulations.

May collect fees or tickets.

5-91.30 Sightseeing Guide.

Escorts groups of tourists and others on sightseeing tours within a city, or to places of historical or general interest:

points out places of interest such as ancient monuments, buildings, bridges, museums and picture galleries, giving brief commentary on each.

May escort and lecture groups in one establishment only, such as museum or picture gallery. May drive motor vehicle to transport groups.

5-91.90 Other Guides.

This group includes guides not elsewhere classified, for example those who organise or conduct mountain-climbing, hunting or fishing excursions; guide groups over industrial establishments such as shipbuilding yards, oil refineries or factories and describe features of interest.

5-92 Undertakers and Embalmers

Workers in this unit group perform various tasks in the disposal of dead human bodies.

Their functions include:

making arrangements for and conducting funerals and arranging cremations and burials;

embalming human bodies to retard or arrest the process of decay;

performing various related tasks.

5-92.20 Undertaker.

Makes arrangements for and conducts funerals:

interviews family to obtain data about the deceased and other information and complete documents; aids in planning details, such as selecting coffin and burial clothes, arranging for burial service and floral displays, publishing death notices and selecting burial plot; arranges coffin in room where services are to be held, adjusting lights and floral displays; estimates number of mourners and provides for their transport, selects bearers, if requested, and directs them to remove coffin to hearse and from hearse to grave or vault; makes arrangements for transport of body by various means of conveyance; operates device to lower coffin into grave.

May embalm body or arrange for cremation.

5-92.30 Embalmer.

Embalms bodies of human beings to retard or arrest the process of decay:

washes body with germicidal soap; sews lips shut and packs orifices with cotton to prevent leakage; drains blood from body, if possible, and injects embalming fluid; punctures internal organs through abdomen to remove natural fluids and gases; restores maimed or disfigured bodies to their normal appearance by affixing pieces of moulded wax, plaster of Paris or other material to injured portions of body; closes incisions and dresses body; applies cosmetics to face to restore its natural expression; places body in coffin.

5-92.90 Other Undertakers and Embalmers.

This group includes undertakers and embalmers not elsewhere classified, for example those who assist with various duties in connection with funeral arrangements, such as preparing corpse for burial; embalm bodies for use in dissecting rooms of medical colleges.

5-99 Other Service Workers

Workers in this unit group perform miscellaneous service tasks not elsewhere classified.

Their functions include:

determining odds and receiving and paying bets on results of sporting events;

conducting games of chance in gambling establishments;

performing simple tasks to assist medical, dental and nursing personnel in consulting rooms, hospitals or other institutions;

performing non-technical tasks in pharmacies, under the direction of a pharmacist;

performing simple tasks to assist veterinarians in animal clinics or other veterinary establishments;

rendering personal services to ensure comfort and safety of aircraft passengers;

performing a variety of other services.

5-99.20 Bookmaker (Sport).

Determines odds and receives and pays off bets on results of sporting events:

determines risks to decide odds and to hedge or refuse bets; declares, or prepares and issues, list of approximate odds on animals, individuals or teams; receives bets in person, by telephone, messenger or teletype; pays off bets.

May operate on *pari mutuel* (totaliser) system.

5-99.30 Croupier.

Conducts games of chance in gambling establishments:

distributes cards, rolls dice or spins a roulette wheel; explains and interprets operating rules of establishment; announces winning numbers on game boards; pays out winning bets and collects losing ones.

May sell gambling chips to customers at table and cash them.

5-99.40 Nursing Aid.

Performs simple tasks to assist nursing personnel, physicians or dentists in a consulting room, clinic, hospital or other institution providing medical or dental care:

prepares patients for examination or treatment, holds instruments and adjusts lights and other equipment; bathes, dresses and undresses and otherwise assists patients as required; changes bed linen, applies compresses and provides hot water bottles and other comforts for patients; serves and collects food trays and feeds patients needing help; sterilises instruments and keeps consulting room tidy.

May take and record temperature, pulse and respiration rates as directed. May perform first-aid duties and be a member of an ambulance team. May help in watching and controlling patients in psychiatric hospitals. May specialise in assisting in a dentist's consulting room.

5-99.50 Practical Aid (Pharmacy).

Performs non-technical tasks in a pharmacy, under the direction of a pharmacist:

labels drugs, chemicals and other pharmaceutical preparations; unpacks and stores supplies; replenishes stock on shelves; cleans shelves, counters and other work areas; cleans and sterilises bottles, beakers and other equipment; wraps and delivers orders.

May prepare orders for non-medicinal preparations such as industrial and agricultural chemicals and sell non-pharmaceutical goods such as toiletries, razors and perfumes.

5-99.60 Practical Aid (Veterinary).

Performs simple tasks to assist a veterinarian in an animal clinic or other veterinary establishment for the treatment and care of animals:

bathes animals, brushes and clips hair and nails; measures and mixes specified ingredients to prepare food, and feeds animals; sweeps, dusts and hoses hospital rooms and animal quarters; cleans and sterilises surgical instruments and other equipment; leads or carries animals to treatment room and holds them during treatment.

May receive clients, answer telephone and make appointments. May change dressings, apply prescribed ointments and perform related duties.

5-99.70 Aircraft Cabin Attendant.

Renders personal service to ensure the comfort and safety of aircraft passengers:

greets passengers and conducts to assigned seats; ensures that passenger seat belts are fastened and "no smoking" signs obeyed before take-off and landing; distributes reading matter, answers questions about aircraft, its schedule and route and points out places of interest; ensures pre-prepared meals and beverages are on board and serves them; keeps cabin tidy and stows equipment securely; observes passengers to detect signs of discomfort, administers minor medical aid as necessary and renders any other service contributing to passengers' comfort; explains use of safety equipment such as lifebelts and oxygen masks, and assists passengers in emergencies according to established safety procedures.

May verify ticket, assign seat, record destination, ensure immigration or landing forms are filled in and perform various other clerical duties. May collect money for beverages served. May make announcements.

5-99.90 Other Service Workers Not Elsewhere Classified.

This group includes service workers not elsewhere classified, for example those who assist persons at doors of shops, hotels and other establishments; carry hotel guests' baggage and run errands for them; take charge of hats and coats in public places; operate passenger lifts; receive patrons at places of entertainment, sporting and other events and conduct them to their seats; perform personal services for users of lavatories and rest-rooms and keep such places clean and tidy; receive, check and maintain stock of alcoholic and other beverages in good condition in cellar of licensed establishment; serve as escorts to men and women; dance with partners for a prescribed fee; act as hostesses in bars and other places; pose for paintings, sculptures and other types of art; assist players of games by performing non-playing activities such as carrying golf clubs, setting up pins (skittles) and retrieving balls; paste advertising posters and notices on walls and billboards; exterminate vermin; operate roundabouts and other fairground equipment; collect, care for and feed lost or strayed dogs and other animals.

MAJOR GROUP 6

AGRICULTURAL, ANIMAL HUSBANDRY AND FORESTRY WORKERS, FISHERMEN AND HUNTERS

Workers in this major group manage farms or conduct them on their own behalf or in partnership, supervise or perform agricultural, animal husbandry and forestry tasks, catch fish, hunt and trap animals, and perform related tasks.

They are classified in the minor groups listed below:

6-0 Farm managers and supervisors.
6-1 Farmers.
6-2 Agricultural and animal husbandry workers.
6-3 Forestry workers.
6-4 Fishermen, hunters and related workers.

6-0 FARM MANAGERS AND SUPERVISORS

Workers in this minor group manage farms on behalf of their owners and supervise and co-ordinate the activities of farm workers. They are classified in the unit group mentioned below:

6-00 Farm Managers and Supervisors.

6-00 Farm Managers and Supervisors

Workers in this unit group manage farms and supervise the activities of farm workers.

Their functions include:

planning, organising and controlling the operation of farms on behalf of private, collective or public owners;

supervising and co-ordinating the activities of workers engaged in crop growing, livestock raising and related farm work.

6-00.20 Farm Manager.

Plans, organises and controls the operation of a farm on behalf of private, collective or public owner:

confers with owner or management body to plan scope and objectives of farming programme; plans and schedules nature and sequence of farming activities according to programme objectives and estimates operating costs; orders supplies, such as seeds, fertilisers, livestock, fodder and farming equipment; controls, directly or through subordinates, farming operations such as crop growing and livestock raising, and co-ordinates and directs activities of farm personnel; markets farm products; directs maintenance and repair of farm buildings and equipment; controls and supervises the keeping of production, sales, receipts, expenditure and other records; reports regularly to proprietors of farm; hires and discharges workers.

May specialise in a particular branch of farming, such as raising livestock or growing field or orchard crops.

6-00.30 Farm Supervisor.

Supervises and co-ordinates activities of workers engaged in crop growing, livestock raising and related farm work:

confers with farm owner or manager on work programme; supervises workers engaged in various farm activities, such as planting, cultivating, spraying, harvesting, care and feeding of livestock and maintenance and repair of farm buildings, machinery and equipment.

May hire and discharge workers. May keep production and other records. May specialise in a particular branch of farming such as raising livestock or growing field or orchard crops.

6-1 FARMERS

Workers in this minor group conduct mixed farms to produce a variety of agricultural and animal husbandry products, or specialised farms to produce a particular type of agricultural or animal husbandry product, on their own behalf or in partnership. They are classified in the unit groups listed below:

6-11 General Farmers.
6-12 Specialised Farmers.

6-11 General Farmers

Workers in this unit group conduct mixed farms, on their own behalf, or in partnership, to produce a variety of agricultural and animal husbandry products.

Their functions include:

directing or performing two or more types of the specialised farming operations described in unit group 6-12.

6-11.10 General Farmer.

Conducts a farm on own behalf, or in partnership, to produce a variety of agricultural and animal husbandry products:

determines kinds and amounts of crops to be grown and livestock to be raised; purchases seed, fertiliser, farm machinery, livestock, fodder and other supplies; directs and supervises, or performs, farming operations such as preparing land, sowing, cultivating and harvesting crops, breeding and raising livestock and keeping farm buildings, machinery and equipment in good repair; markets farm products; keeps production, sales, receipts, expenditure and other farming records; hires and discharges workers.

6-12 Specialised Farmers

Workers in this unit group conduct a specialised farm on their own behalf, or in partnership.

Their functions include:

growing field crops;

cultivating trees or shrubs for their fruit, leaves or sap;

breeding and raising livestock for meat, hides, wool, fur, milk or other products;

breeding and raising poultry for eggs or meat;

propagating trees, shrubs, flowers and other plants;

growing vegetables by intensive cultivation techniques;

growing other crops, breeding and raising game or pet birds, or raising reptiles or insects.

6-12.20 Field Crop Farmer.

Conducts a farm on own behalf, or in partnership, to grow field crops:

performs tasks similar to those of *General farmer (6-11.10)* but specialises in growing one or more field crops such as wheat, rye, maize, potatoes, cabbages, beet, sisal, sugar cane, rice, groundnuts, tobacco, flax, or jute; directs and supervises, or performs, field crop farming operations such as ploughing, harrowing, distributing fertiliser, sowing, harvesting, haymaking, baling and stacking, by hand or machine.

May keep working animals and raise livestock for food for own household. May specialise in particular field crop and be designated accordingly.

6-12.30 Orchard, Vineyard and Related Tree and Shrub Crop Farmer.

Conducts a farm on own behalf, or in partnership, to cultivate trees or shrubs for production of their fruits, leaves or saps:

performs tasks similar to those of *General farmer (6-11.10)* but specialises in propagating and cultivating trees and shrubs to produce fruit, nuts, coffee or cocoa beans, hops, berries, tea leaves, rubber latex, pine resin, maple syrup and other tree and shrub products; directs and supervises, or performs, orchard, vineyard and related tree and shrub crop farming operations such as propagation of trees and shrubs from seeds or cuttings or by budding and grafting, pruning and shaping trees and shrubs, and working and tending soil around trees and shrubs to conserve moisture, prevent erosion and maintain other necessary conditions.

May process tree and shrub products to make fruit pulp or juice, wine, cider, vinegar, dried fruit or other derived products. May specialise in cultivating particular kind of orchard, vineyard or related tree or shrub and be designated accordingly.

6-12.40 Livestock Farmer.

Conducts a farm on own behalf, or in partnership, to breed and raise livestock:

determines kind of livestock to be raised, such as cattle, sheep, pigs, horses, ostriches, reindeer, fur-bearing animals, dogs, cats, rabbits, guinea pigs or rats; selects and buys suitable animals and purchases equipment and supplies; directs and supervises, or performs, livestock farming operations such as pairing animals for breeding, breeding by artificial insemination, allocating animals to grazing pastures or keeping them in pens, barns or special conditions conducive to well-being of wild animals in captivity, preparing and distributing fodder and feed supplements to animals, caring for health of livestock, treating animals for minor injuries and tending them during birth of young, and maintaining farm buildings, fences and equipment in good repair; prepares and markets animals and animal products; keeps production, sales and other records; hires and discharges workers.

May grow feed for own animals. May raise and exhibit show animals, or raise thoroughbred or stud stock. May specialise in raising particular species of livestock and be designated accordingly.

6-12.50 Dairy Farmer.

Conducts a farm on own behalf, or in partnership, primarily for production of milk:

performs tasks similar to those of *Livestock farmer (6-12.40)* but specialises in raising animals for the production of milk; directs and supervises, or performs, dairy farming operations such as breeding, feeding and caring for milch cows, goats or other animals, hand or machine milking, straining and cooling milk and transferring it to bulk containers for transport to processing plant.

May separate cream, pasteurise and market milk and make butter, cheese and other milk products. May send cream to processing plant and retain skim milk for feeding young livestock.

6-12.60 Poultry Farmer.

Conducts a farm on own behalf, or in partnership, to breed and raise poultry for eggs or meat:

performs tasks similar to those of *Livestock farmer (6-12.40)* but specialises in raising poultry, such as fowls, ducks, geese and turkeys, for eggs or meat; directs and supervises, or performs, poultry farming operations such as breeding, feeding and caring for poultry, tending incubators and brooder houses, grading and preparing chicks, gathering, examining, washing, grading and packing eggs for market, and culling and replacing poultry stock; keeps and interprets breeding records.

May sell eggs direct to consumer. May kill, dress and pack poultry for shipment or direct sale. May raise high-quality poultry for breeding purposes. May specialise in conducting a poultry hatchery, or in breeding and raising a particular species of poultry, and be designated accordingly.

6-12.70 Horticultural Farmer.

Conducts a nursery or market garden on own behalf, or in partnership, to propagate trees, shrubs, flowers and other plants or to grow vegetables by intensive cultivation techniques:

performs tasks similar to those of *General farmer (6-11.10)* but specialises either in propagating trees, shrubs, flowers, and other plants and producing their seeds or bulbs, or in growing vegetables such as lettuces, tomatoes, carrots, peas, onions and sprouts by intensive cultivation methods; directs and supervises, or performs, nursery farming or market gardening operations such as propagation from seeds or cuttings or by budding and grafting or layering, cultivating plants under glass, thinning and transplanting seedlings, adjusting temperatures, lighting and ventilation in glasshouses, watering plants, sterilising soil, fumigating glasshouses and selecting and preparing produce for marketing.

May experiment to develop new varieties of plants. May sell produce direct to consumer. May provide special nursery services such as landscape planting or customer instruction in cultivation methods. May specialise in particular type of nursery farming and be designated accordingly.

6-12.90 Other Specialised Farmers.

This group includes specialised farmers not elsewhere classified, for example those who specialise in growing mushrooms, reeds or spices; or breeding and raising game or pet birds, frogs, snakes, tortoises, alligators, worms, silkworms or bees.

6-2 AGRICULTURAL AND ANIMAL HUSBANDRY WORKERS

Workers in this minor group perform a variety of tasks in growing field and market garden crops, cultivating trees, shrubs and flowers, breeding and raising livestock and poultry, operating farm machinery and related agricultural and animal husbandry work. They are classified in the unit groups listed below:

6-21 General Farm Workers.
6-22 Field Crop and Vegetable Farm Workers.
6-23 Orchard, Vineyard and Related Tree and Shrub Crop Workers.
6-24 Livestock Workers.
6-25 Dairy Farm Workers.
6-26 Poultry Farm Workers.
6-27 Nursery Workers and Gardeners.
6-28 Farm Machinery Operators.
6-29 Agricultural and Animal Husbandry Workers Not Elsewhere Classified.

Farm supervisors are classified in unit group 6-00 and working proprietors of farms in minor group 6-1.

6-21 General Farm Workers

Workers in this unit group perform a variety of tasks in breeding and raising livestock, growing crops and maintaining farm structures and equipment, and assist generally on farms by performing simple farming tasks.

6-21.05 Farm Worker (General).

Performs a variety of tasks in growing crops and breeding and raising livestock:

ploughs, harrows and fertilises soil, sows seeds, plants fruit trees, cultivates crops and performs other tasks in growing field, orchard and other crops; takes part in harvesting operations; feeds livestock and poultry, milks cows, shears sheep and performs other tasks in the breeding and raising of livestock; uses a variety of farming equipment, including animal-drawn and motorised equipment; maintains and repairs farm buildings, fences, machinery and other equipment.

6-21.10 Farm Helper (General).

Assists generally on farm, performing a variety of simple farming tasks such as the following:

feeds and waters livestock and cleans out animals' quarters; weeds and waters plants, shrubs and fruit trees; shovels earth to clear ditches and for other purposes; spreads manure and fertiliser; rakes and pitches hay; picks fruit and vegetables by hand and performs other simple harvesting tasks; assists, under supervision, in general work of farm.

May be designated according to work performed or terms of employment.

6-22 Field Crop and Vegetable Farm Workers

Workers in this unit group perform tasks in planting, cultivating and harvesting field crops.

Their functions include:

performing a variety of tasks in the growing of vegetables, cereals, cotton, sugar cane or other field crops.

Workers who grow vegetables by intensive cultivation techniques are classified in 6-27.20.

6-22.10 Field Crop Farm Worker (General).

Performs a variety of tasks in the growing of two or more field crops:

performs tasks similar to those of *Farm worker (general) (6-21.05)* but specialises in planting, cultivating, and harvesting two or more crops such as wheat, barley, rye, colza, potatoes, cabbages, sugar-beet, sisal, flax, or jute; performs, by hand or machine, field crop farming tasks such as planting, weeding, thinning, spraying and harvesting crops, irrigating fields, threshing and winnowing grain, and baling and stacking straw.

May prepare, grade, weigh and pack produce for marketing.

6-22.20 Vegetable Farm Worker.

Performs a variety of tasks in the growing of vegetables as field crops:

performs tasks similar to those of *Field crop farm worker (general) (6-22.10)* but specialises in planting, cultivating and harvesting vegetables such as potatoes, cabbages, sugar beet, beans, carrots and peas.

May specialise in growing a particular type of vegetable and be designated accordingly. Workers who grow vegetables by intensive cultivation techniques are classified in 6-27.20.

6-22.30 Wheat Farm Worker.

Performs a variety of tasks in the growing of wheat crops:

performs tasks similar to those of *Field crop farm worker (general) (6-22.10)* but specialises in planting, cultivating and harvesting wheat.

6-22.40 Cotton Farm Worker.

Performs a variety of tasks in the planting, cultivating and harvesting of cotton:

performs tasks similar to those of *Field crop farm worker (general) (6-22.10)* but specialises in planting, cultivating and harvesting cotton; performs cotton farming tasks such as weeding, thinning and irrigating plants and picking mature cotton or operating a cotton-picking machine.

6-22.50 Rice Farm Worker.

Performs a variety of tasks in the planting, cultivating and harvesting of rice:

performs tasks similar to those of *Field crop farm worker (general) (6-22.10)* but specialises in planting, cultivating and harvesting rice; performs rice farming tasks such as transplanting seedlings for growing paddy rice and controlling level of water in paddies by operating pumps or sluices.

6-22.60 Sugar-Cane Farm Worker.

Performs a variety of tasks in the planting, cultivating and harvesting of sugar cane:

performs tasks similar to those of *Field crop farm worker (general) (6-22.10)* but specialises in planting, cultivating and harvesting sugar cane; performs sugar-cane farming tasks such as preparing and planting cuttings, digging and clearing irrigation canals, harvesting cane by cutting it near ground and trimming off leaves, and loading cut cane onto transport vehicle.

6-22.90 Other Field Crop and Vegetable Farm Workers.

This group includes field crop farm workers not elsewhere classified, for example those who specialise in planting, cultivating and harvesting a particular field crop (other than vegetables, wheat, cotton, rice and sugar cane) such as barley, rye, colza, sisal, groundnuts, tobacco, flax or jute; and those occupied mainly in harvesting of field crops.

6-23 Orchard, Vineyard and Related Tree and Shrub Crop Workers

Workers in this unit group perform a variety of tasks in the cultivation of trees for their fruits, leaves or sap.

Their functions include:

propagating and cultivating fruit and nut trees, grape-vines, tea bushes, rubber trees, coffee bushes, cocoa trees and berry-bearing bushes;

pruning and budding and grafting fruit trees;

harvesting orchard, vineyard and related tree and shrub crops;

tapping rubber trees.

6-23.20 Orchard Worker.

Performs a variety of tasks in the planting and cultivating of fruit and nut trees and the harvesting of their fruits:

ploughs, harrows and otherwise cultivates soil; sprays trees to control insect pests and diseases; prunes trees to shape them and increase yield; takes part in harvesting operations; performs other tasks such as thinning crop, lighting smudge pots and torches during cold weather, clearing weeds and operating a variety of farm machinery and equipment.

May propagate trees from seed and by budding and grafting. May grade and pack fruit and transport produce to market.

6-23.30 Vineyard Worker.

Performs a variety of tasks in the planting and cultivating of grape-vines and the harvesting of grapes:

performs tasks similar to those of *Orchard worker (6-23.20)* but specialises in cultivating grape-vines; performs various vineyard tasks such as erecting stakes, wires or other supports for grape-vines.

May preserve grapes by dipping them in chemical solutions and drying them on racks.

Wine worker is classified in 7-78.50.

6-23.40 Tea Plantation Worker.

Performs a variety of tasks in the propagation and cultivation of tea bushes:

clears trees and bushes for tea field, burns off remaining growth, ploughs in ashes and manures, fertilises and otherwise prepares soil; propagates tea seedlings from seed or cuttings in nursery; transplants tea seedlings to field and tends their growth; weeds tea field, treats tea bushes with chemicals to control insect pests and diseases, and prunes bushes regularly to restrict height and encourage leaf growth.

May take part in tea-plucking operations.

6-23.50 Rubber Plantation Worker.

Performs a variety of tasks in the propagation, cultivation and tapping of rubber trees:

clears trees and other unwanted growth for rubber field, and levels, manures and otherwise prepares soil; propagates rubber seedlings from seed in nursery or by budding and grafting; transplants rubber seedlings to field and tends their growth; treats rubber trees with chemicals to control insect pests and diseases, and thins them by removing weak and low-yielding trees; taps mature trees by making cuts in bark and attaches cup to tree trunk to receive latex; transfers latex to pails for transporting to collecting station; cultivates cover crop around trees and participates in other measures to prevent soil erosion; takes part in construction and maintenance of plantation drainage system.

6-23.90 Other Orchard, Vineyard and Related Tree and Shrub Crop Workers.

This group includes orchard, vineyard and related tree and shrub crop workers not elsewhere classified, for example those who specialise in planting, cultivating and harvesting coffee, cocoa or berries; pruning, budding and grafting fruit trees; harvesting orchard, vineyard and related tree and shrub crops; or tapping rubber trees and collecting the latex.

6-24 Livestock Workers

Workers in this unit group perform tasks in breeding and raising livestock.

Their functions include:

performing a variety of tasks in breeding and raising cattle, sheep, pigs, fur-bearing animals, horses, goats, ostriches, reindeer or other species of livestock;

breeding cattle by artificial insemination, shearing sheep, dehorning cattle, training and caring for racehorses and caring for zoo animals.

Farm workers engaged in dairy farm work are classified in unit group 6-25 and those engaged in poultry farm work in unit group 6-26. Workers breeding and raising reptiles and insects are classified in unit group 6-29.

6-24.10 Livestock Worker (General).

Performs a variety of tasks in the breeding and raising of two or more species of livestock:

feeds, waters, treats for minor diseases and injuries and otherwise cares for two or more species of livestock such as cattle, horses, sheep, goats, pigs, reindeer and ostriches; tends grazing herds, preventing animals from straying, eating poisonous plants or drinking polluted water and guarding them against other dangers; herds animals, often on horseback and using trained dogs, and moves them to new pastures or market; mates animals, tends them during birth of young, and cares for young animals; performs other duties, such as milking, gelding, branding, docking, shearing, killing, skinning and preparing animals for market; maintains and repairs farm buildings fences and equipment;

May plant, cultivate and harvest feed crops for livestock.

Workers breeding, raising and milking cows in a dairy farm are classified in unit group 6-25.

6-24.20 Beef Cattle Farm Worker.

Performs a variety of tasks in the breeding and raising of beef cattle:

performs tasks similar to those of *Livestock worker (general) (6-24.10)* but specialises in beef cattle.

6-24.30 Sheep Farm Worker.

Performs a variety of tasks in the breeding and raising of sheep for meat or wool:

performs tasks similar to those of *Livestock worker (general) (6-24.10)* but specialises in sheep.

6-24.40 Pig Farm Worker.

Performs a variety of tasks in the breeding and raising of pigs:

performs tasks similar to those of *Livestock worker (general) (6-24.10)* but specialises in pigs.

6-24.50 Fur-Bearing Animal Farm Worker.

Performs a variety of tasks in the breeding and raising of fur-bearing animals for their pelts:

performs tasks similar to those of *Livestock worker (general) (6-24.10)* but specialises in fur-bearing animals such as mink, foxes, otter and marten; performs fur-bearing animal farm tasks such as tending stoves and other equipment to maintain proper temperature and humidity in animals' living quarters, selecting, killing and skinning animals when fur is in best condition, and treating and packing pelts for marketing.

May keep records of animals' weights, diets or other data. May specialise in particular species of fur-bearing animal and be designated accordingly.

6-24.90 Other Livestock Workers.

This group includes livestock workers not elsewhere classified, for example those who specialise in breeding and raising a particular type of livestock (other than beef cattle, sheep, pigs and fur-bearing animals) such as horses, goats, ostriches, reindeer, dogs or cats; and those mainly occupied in breeding cattle by artificial insemination, shearing wool from sheep, removing horns from cattle, caring for working animals at industrial sites or in livery stables, training and caring for racehorses or race dogs, caring for animals in zoos or menageries, breeding and raising rats, guinea pigs or other animals required by research workers for experimental purposes, and caring for pet animals during absence of owners.

6-25 Dairy Farm Workers

Workers in this unit group perform tasks in dairy farming.

Their functions include:

performing a variety of tasks in the breeding, raising and milking of dairy animals;
milking cows by machine or hand;
straining and cooling the milk and transferring it to bulk containers.

Workers on a dairy farm occupied mainly in pasteurising and bottling milk or in making butter, cheese, yoghurt or other dairy products are classified in unit group 7-75.

6-25.10 Dairy Farm Worker (General).

Performs a variety of tasks in the breeding, raising and milking of dairy cattle:

performs tasks similar to those of *Livestock worker (general) (6-24.10)* in connection with breeding and raising dairy cows; drives cows into milking station, prepares them for milking and milks them by hand or machine; strains and cools milk and transfers it to bulk containers for transport to processing plant; keeps stalls and milking stations clean and provides new bedding in stalls; performs other duties, such as culling calves for marketing, cleaning milk containers, separating cream from milk by machine and making yoghurt and cheese.

May plant, cultivate and harvest feed crops for dairy cattle. May keep production and other records.

6-25.20 Milker (Machine).

Milks dairy cows by machine:

guides cow into stanchion and cleans teats and udder with disinfectant; squeezes teat to take test sample of cow's milk; if sample satisfactory, starts milking-machine and attaches cups of machine to cow's teats; removes cups when milking completed; strains and cools milk and transfers it to bulk containers for transport to processing plant; cleans and sterilises milking equipment.

6-25.90 Other Dairy Farm Workers.

This group includes dairy farm workers not elsewhere classified, for example those who specialise in raising goats or other animals (except cows) for milk.

6-26 Poultry Farm Workers

Workers in this unit group perform poultry farming tasks.

Their functions include:

performing a variety of tasks in the breeding, raising and tending of poultry or in the hatching of eggs for commercial purposes;
trimming and searing beaks, claws and wings of chicks;
collecting semen and artificially inseminating hens;
determining the sex of chicks;
minding flocks of turkeys or geese.

6-26.10 Poultry Farm Worker (General).

Performs a variety of tasks in the breeding, raising and tending of poultry:

cleans and fills feeders and water containers; inspects poultry for indication of diseases, and removes weak, sick or dead poultry from flock; collects eggs and packs them for marketing; places fertile eggs in incubator trays, disinfects and labels trays and places them in incubator; removes chicks from incubator and places them in brooder house until they reach specified age and size; determines sex of chicks; grades chicks and packs them in boxes for shipment or marketing; kills, dresses and packs poultry for marketing; maintains and repairs incubators, poultry houses, poultry runs and brooder houses.

May gather and chop green feed and distribute to poultry. May specialise in particular species of poultry and be designated accordingly.

6-26.20 Poultry Hatchery Worker.

Performs a variety of tasks in the hatching of eggs for commercial purposes:

examines eggs for fertility and weighs and classifies them; fills and disinfects incubator trays; sets incubator temperature and humidity controls and inserts trays; adjusts controls as necessary to maintain specified conditions and periodically turns eggs; transfers chicks to heated brooders; examines, sexes, grades and prepares chicks for shipment; cleans, maintains and repairs hatchery equipment; keeps records of eggs graded and incubated and other data.

May examine breeding poultry for diseases.

6-26.90 Other Poultry Farm Workers.

This group includes poultry farm workers not elsewhere classified, for example those who specialise in trimming and searing beaks, claws and wings of chicks; collecting semen and artificially inseminating hens; determining the sex of chicks; or minding flocks of turkeys or geese.

6-27 Nursery Workers and Gardeners

Workers in this unit group perform nursery, gardening and market gardening tasks.

Their functions include:

performing a variety of tasks in the growing of vegetables by intensive cultivation techniques or in the propagation and cultivation of trees, shrubs, flowers and other plants, and the production of bulbs and seeds, for sale;

cultivating flowers, trees, shrubs and other plants in parks or public or private gardens;

growing tropical and other plants for exhibition or medicinal purposes;

performing related tasks.

6-27.20 Market Garden Worker.

Performs a variety of tasks in the growing of vegetables by intensive cultivation techniques:

prepares soil and plants lettuce, tomato, carrot, pea, onion, sprout and other vegetable seeds in open or under glass in off-season; regulates temperature, humidity, ventilation and lighting of glasshouses; thins seedlings and transplants them to open or glassed beds; weeds and waters plants; treats plants with chemicals to control diseases and pests; selects, gathers, grades and packs produce for marketing; sterilises soil and fumigates glasshouses; maintains and repairs market garden structures and equipment.

May operate tractors, ploughs and other farm machinery. May also grow fruit or flowers.

6-27.30 Nursery Worker.

Performs a variety of tasks in the propagation and cultivation of trees, shrubs, flowers and other plants, and the production of bulbs and seeds, for sale:

performs tasks similar to those of *Market garden worker (6-27.20)* but specialises in the propagation of trees, shrubs, flowers and other plants and in the production of their bulbs and seeds; performs nursery tasks such as propagating from cuttings or by budding and grafting or layering, stimulating plant growth with hormones, pruning and shaping trees and shrubs and staking young plants.

May lay turf and transplant trees and shrubs according to specified layout. May specialise in particular phase of nursery work, such as propagation, and be designated accordingly.

6-27.40 Gardener.

Cultivates flowers, trees, shrubs and other plants in parks or public or private gardens:

prepares soil, plants flowers, shrubs and trees, sows grass seed and lays turf; treats plants, shrubs and trees with chemicals to control diseases and pests; weeds flower beds, clips shrubs, prunes trees, mows lawns, maintains paths and otherwise tends gardens.

May propagate plants from seeds or cuttings in a glasshouse, or by budding and grafting or other methods. May also grow vegetables and tend fruit trees in private gardens.

Park maintenance men are classified in 6-29.60.

6-27.90 Other Nursery Workers and Gardeners.

This group includes nursery workers and gardeners not elsewhere classified, for example those who specialise in growing tropical and other plants for exhibition or medicinal purposes; growing plants and shrubs to develop new varieties and colours; or growing plants required by research workers for experimental purposes.

6-28 Farm Machinery Operators

Workers in this unit group operate farm machinery.

Their functions include:

operating and servicing one or more types of motorised farm machinery or equipment;

operating and servicing one or more types of farm machinery or equipment drawn or powered by animals.

Milker (machine) is classified in 6-25.20 and operators of bulldozers and excavating and trench-digging machines are classified in unit group 9-74.

6-28.20 Motorised Farm Equipment Operator.

Operates and services one or more types of motorised farm machinery or equipment:

prepares and adjusts self-propelled ploughing, planting, harvesting, baling or other special-purpose farm machinery, or similar tractor-drawn equipment; drives self-propelled machine, or tractor with attachments, and manipulates controls to plough, plant, harvest and perform other farming operations; sets and operates threshing, winnowing and other stationary agricultural machines; drives farm tractor to tow wagons, pull out tree stumps and perform other tasks; cleans and lubricates machines and does minor repairs.

May specialise in operation of particular type of machine or equipment and be designated accordingly.

6-28.90 Other Farm Machinery Operators.

This group includes farm machinery operators not elsewhere classified, for example those who specialise in operating and servicing one or more types of farm machinery drawn or powered by animals.

6-29 Agricultural and Animal Husbandry Workers Not Elsewhere Classified

Workers in this unit group perform tasks in agriculture and animal husbandry not classified elsewhere.

Their functions include:

performing a variety of tasks in the establishment and care of beehives and the extraction of honey or in the breeding and raising of silkworms, other insects and reptiles;
tapping trees and gathering their saps;
irrigating agricultural land;
maintaining recreation and sports grounds.

6-29.20 Apiary Worker.

Performs a variety of tasks in the establishment and care of beehives and the extraction of honey:

affixes waxed paper to wooden frames on which honey combs will be formed; induces swarming bees into new hives; admits smoke into hives to stupefy bees and gain access, kills moths and other parasites in hives, destroys superfluous queen bees, and removes full honeycombs; extracts honey from combs in press or centrifuge; maintains and repairs hives and other apiary equipment.

May feed bees with sugar solution in winter, including chemical additives, to preserve their health. May move hives close to orchards or other suitable sites in flowering season.

6-29.30 Sericulture Worker.

Performs a variety of tasks in the breeding and raising of silkworms:

collects eggs deposited by silkworm moths; retains healthy eggs and cleans and stores them at proper temperature for hatching, using incubators if necessary; feeds growing worms with mulberry leaves and maintains correct temperature, ventilation and humidity in rearing houses; collects cocoons when silkworms develop to chrysalis stage; selects cocoons suitable for breeding and hangs them in special room to develop into moths; dries, sorts and grades cocoons preparatory to sale; cleans and disinfects rearing houses.

6-29.40 Tree Tapper (except Rubber).

Makes cuts in trunks of certain kinds of trees and gathers exuded gums, resins, or other saps:

cuts oval-shaped faces on tree with broadaxe preparatory to tapping; cuts narrow V-shaped opening in tree trunk with axe or special tool to permit flow of sap; fastens cups on trees to catch sap; frequently checks tapped trees, empties full cups into bucket, and scrapes coagulated sap from scars on trees.

6-29.50 Irrigator.

Performs a variety of tasks in irrigating agricultural land:

checks that irrigation channels are unobstructed and starts water flow from canal or river by operating motorised pump, syphon or manual or animal-powered water-lifting wheel, or by opening gate in irrigation conduit; stops water flow when land is sufficiently irrigated; maintains and repairs irrigation equipment and keeps irrigation channels and conduits in good order.

May irrigate with fixed or rotating sprays or by other means.

6-29.60 Groundsman.

Maintains golf courses, race-tracks, cricket, baseball and football fields, tennis courts, and other sports, recreation and park grounds:

mows, rolls and waters turf; seeds or returfs pitches, greens or other grassed areas; marks out playing fields and tennis courts, prepares golf teeing-grounds and greens, prepares and maintains fences and jumps on horse race-tracks and performs related tasks on other sports and recreation grounds; repairs fences and stands, trims hedges and grass verges, removes litter and performs various other tasks to keep grounds in good condition.

May plant and cultivate flowers, shrubs and trees and perform landscaping tasks.

6-29.90 Other Agricultural and Animal Husbandry Workers.

This group includes agricultural and animal husbandry workers not elsewhere classified, for example those who mainly perform tasks in breeding and raising frogs, snails, snakes or worms; breeding and raising birds for zoos or for sale as pets; growing mushrooms or spices; or gathering roots, herbs, reeds, osier and other natural forest products.

6-3 FORESTRY WORKERS

Workers in this minor group supervise and perform tasks in the cultivation, conservation and exploitation of forests. They are classified in the unit groups listed below:

6-31 Loggers.
6-32 Forestry Workers (except Logging).

6-31 Loggers

Workers in this unit group perform logging tasks.

Their functions include:

felling trees and sawing them into logs;

trimming and topping trees selected for log-hauling operations;

launching logs into river and guiding them downstream to mill or into rafts or booms for further transport;

operating wood-harvesting machines;

loading logs into chutes or stacking them;

shaping rough products from logs at felling site;

grading logs according to quality;

determining volume of marketable timber in logs.

Logging rigger is classified in 9-72.90, *Timber-carrier driver* in 9-79.50, winch and hoist operators are classified in unit group 9-73, operators of bulldozers, road-making and related equipment in unit group 9-74 and *Animal and animal-drawn vehicle drivers* in unit group 9-86.

6-31-10 Logger (General).

Fells trees, saws them into logs and performs other logging tasks:

identifies tree to be felled, according to markings or other instructions, and clears undergrowth; fells tree, using axe and powered or hand saw, trims branches and saws trunk into logs; selects, trims and tops anchor trees for log hauling, attaches hauling tackle and sets up winching equipment; fastens noose of winching or hauling cable about logs and performs other tasks in skidding or hauling them to transportation point.

6-31.20 Tree Feller and Bucker.

Fells trees and saws them into logs, using axe and manual or powered saw:

identifies tree to be felled and determines direction in which it should fall; cuts undergrowth from around butt of tree and prepares bed for tree if necessary; attaches ropes or cables to tree, and to anchor trees if necessary, to control direction of fall; makes V-shaped cut (undercut) in tree on side to which it should fall; makes saw cut (back cut) on opposite side to under-cut and slightly above it; trims branches from felled tree and saws trunk into logs.

May use wedge to tip tree in desired direction. May sharpen axes and saws. May specialise in felling or bucking and be designated accordingly.

6-31.30 High Climber (Logging).

Trims and tops anchor trees selected for log hauling operations:

climbs trees using spurs and safety belt; cuts limbs and tops from trees, using hand saw and axe.

May attach hauling tackle to trees.

Logging rigger is classified in 9-72.90.

6-31.40 River Driver.

Launches logs into river and guides them downstream to mill or into rafts or booms for further transport:

rolls logs into stream, using pike or cant hook; walks on floating logs and guides them with pike to prevent them running aground or being stopped by obstacles; frees jammed logs with pike or cant hook or by means of dynamite.

May return up river and roll stranded logs into river, or pull trapped logs onto shore to be collected by truck. May walk on logs or work from boat to assemble logs into rafts or booms using pike or cant hook and bind them together with chains or other fastening devices. May guide assembled raft or boom downstream.

6-31.90 Other Loggers.

This group includes loggers not elsewhere classified, for example those who are occupied mainly in operating wood-harvesting machines to fell, branch, cross-cut or bark trees or to perform other logging operations; loading logs into chutes or stacking them preparatory to transport out of forest; shaping rough wooden products from logs, such as railway ties and telephone poles, near felling site; examining logs and grading them according to quality or measuring them to determine their volume of marketable timber.

6-32 Forestry Workers (except Logging)

Workers in this unit group supervise and perform tasks in the cultivation, conservation and exploitation of forests.

Their functions include:

supervising and co-ordinating tree cultivation, conservation and harvesting operations and enforcing safety and preservation regulations in forests;

performing a variety of tasks in the establishment and care of forest stands;

locating and estimating the volume of marketable timber in forests;

patrolling or keeping watch to detect forest fires and participating in fire-fighting operations;

performing various related tasks.

6-32.20 Forest Supervisor.

Supervises and co-ordinates tree cultivation, conservation and harvesting operations and enforces safety and preservation regulations in a forest:

supervises and directs seed harvesting, propagation and cultivation of young trees in forest nursery, tree planting, thinning, pruning, spraying with insecticides and other pest and disease control activities, and execution of flood control and soil conservation projects; selects and marks trees for felling and inspects logging operations to ensure conformity with forest exploitation programme; inspects camp sites and other recreation areas in forest and advises visitors about camping, hunting, fishing and other recreation facilities, and about safety, sanitary and other regulations; enforces regulations concerning fire prevention and preservation of wild life and vegetation in forest; investigates and reports on accidents, acts of vandalism, thefts and fires occurring in forest.

May direct fire-fighting and search and rescue operations in forest.

6-32.30 Forestry Worker.

Performs a variety of tasks in the establishing and care of forest stands:

collects, prepares and stores tree seeds; cleans, ploughs, drains, irrigates, fertilises and otherwise prepares seed beds and afforestation areas; sows cones, acorns and tree seeds and raises seedlings; transplants seedlings in afforestation areas; sprays insecticides, builds fences and performs other tasks to protect trees against insects, diseases and predatory animals; prunes trees, thins out dense stands and removes damaged timber and excessive undergrowth; cuts fire lanes and keeps them clear.

May construct and maintain forest access roads. May also perform functions of *Logger (general) (6-31.10)*.

6-32.40 Timber Cruiser.

Locates and estimates volume of marketable standing timber in a forest by examining and measuring samples of the trees:

maps forest and identifies marketable timber; selects sample trees and measures their diameters and heights, using calipers, tape measures and hand level; records measurements and calculates volume of measured trees using prepared tables and own judgment; calculates total volume of marketable timber in forest from volume of sample trees.

6-32.50 Forest Fire-Fighter.

Patrols or keeps watch to detect forest fires and participates in fire-fighting operations:

patrols defined area of forest, or maintains watch from lookout tower, to detect and prevent fires; when fire is discovered informs central station of location by radio, telephone or other means, and requests assistance if necessary; attempts to suppress fire by spraying water or chemicals, clearing area in path of fire and other means, working as member of fire-fighting team to fight large fires.

May inspect camp sites and other recreation areas to ensure compliance with fire-prevention regulations.

6-32.90 Other Forestry Workers.

This group includes forestry workers not elsewhere classified, for example those who are occupied mainly in selecting and marking trees for felling; patrolling a forest to enforce conservation regulations; digging holes and planting tree seedlings; pruning and trimming trees to promote upward growth; removing dead and diseased trees and unwanted species; thinning out dense stands of young trees; clearing undergrowth in forest stands; or stripping bark from cork trees.

6-4 FISHERMEN, HUNTERS AND RELATED WORKERS

Workers in this minor group catch fish, hunt and trap animals, and perform related tasks. They are classified in the unit groups listed below:

6-41 Fishermen.
6-49 Fishermen, Hunters and Related Workers Not Elsewhere Classified.

Hunting and fishing guides are classified in unit group 5-91 and pelt graders and dressers in unit group 7-62.

6-41 Fishermen

Workers in this unit group catch fish.

Their functions include:

working as fishing-vessel crew members and performing a variety of tasks in the catching of deep-sea fish;

performing a variety of tasks in the catching of fish in inland or coastal waters.

6-41.20 Deep-Sea Fisherman.

Works as fishing vessel crew member, performing a variety of tasks in the catching of deep-sea fish:

prepares nets, other fishing tackle and fish bait; catches fish by trawling nets or trolling lines, laying seines or using other kinds of deep-sea fishing equipment; sorts catch, stows in hold and washes down decks; maintains and repairs fishing equipment; usually also performs some duties in operation and maintenance of vessel.

May also clean, salt or otherwise process catch aboard ship. May specialise in catching particular species of fish, or in using particular type of equipment, and be designated accordingly.

6-41.30 Inland and Coastal Waters Fisherman.

Performs a variety of tasks in the catching of fish in inland or coastal waters:

prepares fishing tackle, baits hooks, lays nets or sets traps and other devices to catch fish; catches fish by such methods as laying and anchoring lines, drawing lines through water, laying nets parallel to shore and pulling them to land, or using spears, fish corrals, traps or fish wheels; maintains and repairs fishing equipment.

May specialise in catching particular species of fish, or in using particular type of equipment, and be designated accordingly.

6-49 Fishermen, Hunters and Related Workers Not Elsewhere Classified

Workers in this unit group perform a variety of fishing, hunting and related tasks not classified elsewhere.

Their functions include:

breeding and raising fish;
cultivating oysters;
catching and processing whales at sea;
catching, killing and skinning seals;
trapping and hunting other wild animals;
performing related tasks.

6-49.20 Fish Farm Worker.

Performs a variety of tasks in the breeding and raising of fish:

obtains and hatches fish eggs or buys young fish (fry) from fish hatchery; transfers fry to rearing ponds and provides required foods; collects, sorts and markets fish for food or for stocking rivers, lakes and other fishing grounds.

May catch and prepare food for fish. May maintain reservoirs, ponds, dams or other fish farm structures. May be designated according to kind of fish raised. May also conduct a fish hatchery.

6-49.30 Oyster Farm Worker.

Cultivates oysters in specially prepared sea-water beds:

selects and prepares area of sea bed suitable for oyster cultivation; marks out oyster beds with stakes, removes starfish and other oyster predators, and encloses beds with netting or other protection for oysters; covers beds with clean oyster shells, specially prepared tiles, poles, stones or other clean material to which oyster larvae will attach themselves; scatters oyster larvae over beds; when young oysters have "set", transplants and spaces them in growing beds or special protective cages; transplants mature oysters to fattening beds; harvests, packs and markets fattened oysters; maintains oyster beds and netting enclosures or other equipment.

May purchase oysters ready for fattening and operate fattening beds only.

6-49.40 Whale Hunter.

Works as member of whaler crew performing a variety of tasks in catching whales, cutting them up and processing them at sea:

prepares harpoon gun and shoots harpoon into whale when ship within range; assists in bringing whale carcass aboard ship; uses a variety of hand and powered equipment to cut blubber from whale, sever head, split carcass, extract offal and strip meat from bones; cuts up and stores meat in refrigerated holds; cleans decks and maintains and repairs whaling equipment; usually also performs some tasks in operation and maintenance of vessel and assists in processing blubber or other whale products aboard ship.

May specialise in one of the above-mentioned tasks and be designated accordingly.

6-49.50 Seal Hunter.

Performs a variety of tasks in the catching, killing and skinning of seals for their pelts:

herds seals to killing grounds; kills seals with rifle or club, or by other means; removes skins, scrapes pelts, treats them for preservation and packs them for shipment to market.

6-49.60 Trapper and Hunter.

Traps and hunts wild animals, wild fowl and other game (except seals) for skins, meat, sale alive or to exterminate them as pests:

traps birds and animals by means of baited and camouflaged snares and traps, or hunts them with firearms or other weapons; inspects traps periodically, removes captured prey and resets traps; transfers animals trapped for sale alive to cage for shipment; kills and skins game trapped or hunted for meat or pelts and treats and packs pelts for marketing; maintains and repairs trapping and hunting equipment.

May specialise in hunting particular kind of game and be designated accordingly. May market catch.

6-49.90 Other Fishermen, Hunters and Related Workers.

This group includes fishermen, hunters and related workers not elsewhere classified, for example those who specialise in diving to sea bed to gather sponges and harvest pearl oysters; cultivating pearls in oysters; gathering sea weed, sea mosses, turtles' eggs, and clams and other molluscs; catching tropical and other fish and sea creatures for aquariums and museums; assisting hunters by building and camouflaging traps and beating to flush game; and protecting and caring for wild animals and birds in game preserves and wild-life sanctuaries.

MAJOR GROUP 7/8/9

PRODUCTION AND RELATED WORKERS, TRANSPORT EQUIPMENT OPERATORS AND LABOURERS

Workers in this major group are engaged in or directly associated with the extraction of minerals, petroleum and natural gas from the earth and their treatment; manufacturing processes; the construction, maintenance and repair of various types of roads, structures, machines and other products. Also included are those who handle materials, operate transport and other equipment and perform labouring tasks requiring primarily physical effort.

They are classified in the following minor groups:

7-0 Production supervisors and general foremen.
7-1 Miners, quarrymen, well drillers and related workers.
7-2 Metal processers.
7-3 Wood preparation workers and paper makers.
7-4 Chemical processers and related workers.
7-5 Spinners, weavers, knitters, dyers and related workers.
7-6 Tanners, fellmongers and pelt dressers.
7-7 Food and beverage processers.
7-8 Tobacco preparers and tobacco product makers.
7-9 Tailors, dressmakers, sewers, upholsterers and related workers.
8-0 Shoemakers and leather goods makers.
8-1 Cabinetmakers and related woodworkers.
8-2 Stone cutters and carvers.
8-3 Blacksmiths, toolmakers and machine tool operators.
8-4 Machinery fitters, machine assemblers and precision-instrument makers (except electrical).
8-5 Electrical fitters and related electrical and electronics workers.
8-6 Broadcasting station and sound equipment operators and cinema projectionists.
8-7 Plumbers, welders, sheet metal and structural metal preparers and erectors.
8-8 Jewellery and precious metal workers.
8-9 Glass formers, potters and related workers.
9-0 Rubber and plastics product makers.
9-1 Paper and paperboard products makers.
9-2 Printers and related workers.
9-3 Painters.
9-4 Production and related workers not elsewhere classified.

- 9-5 Bricklayers, carpenters and other construction workers.
- 9-6 Stationary engine and related equipment operators.
- 9-7 Material handling and related equipment operators, dockers and freight handlers.
- 9-8 Transport equipment operators.
- 9-9 Labourers not elsewhere classified.

7-0 PRODUCTION SUPERVISORS AND GENERAL FOREMEN

Workers in this minor group supervise, within an industrial enterprise, the production activities of a distinct sector or unit concerned with extracting, processing, fabricating or construction work. They control and co-ordinate, subject to the general directives of the *General manager (2-11.10)* or *Production manager (2-12.10)*, the activities of workers engaged in various occupations in this unit, including the activities of subordinate supervisors and foremen. They are classified in the unit group mentioned below:

7-00 Production Supervisors and General Foremen.

7-00 Production Supervisors and General Foremen

Workers in this group supervise, subject to the general directives of the *Production manager (2-12.10)* or *General manager (2-11.10)*, within an industrial enterprise, the production activities of a distinct sector or unit concerned with extracting, processing, fabricating or construction work; they control and co-ordinate the activities of workers engaged in various occupations in this unit including the activities of subordinate supervisors and foremen.

Their functions include:

interpreting specifications and job orders;
determining sequence of operations and use of equipment;
estimating manpower requirements;
assigning duties to workers;
analysing and resolving work problems;
co-ordinating the work of the unit with that of other units in the plant;
interpreting enterprise policies to workers;
recommending or initiating personnel action.

7-00.10 Production Supervisor and General Foreman (General).

Supervises production activities in a distinct unit within an establishment, and controls and co-ordinates activities of workers in this unit engaged in various processing and fabricating occupations:

studies production programme and estimates manpower requirements; interprets specifications, blueprints and job orders and determines sequence of operations; estimates supplies and materials needed and makes requisitions; establishes or adjusts work procedures to meet production schedules and assigns duties to workers; co-ordinates work of unit with that of other production units within the establishment; recommends measures to improve production methods, equipment performance, and quality of product, and suggests changes in working conditions and use of equipment to increase efficiency; analyses and resolves work problems; interprets enterprise policies to workers and enforces safety regulations; supervises and co-ordinates activities of subordinate foremen; recommends or initiates personnel action, such as promotions, transfers, discharges and disciplinary measures.

7-00.20 Supervisor and General Foreman (Mining, Quarrying and Well Drilling).

Supervises production activities of a distinct unit in a mine or quarry or at well-drilling site and controls and co-ordinates the activities of workers in this unit engaged in various extracting occupations:

performs tasks similar to those of *Production supervisor and general foreman (general) (7-00.10)* in a mine or quarry, or at a well-drilling site.

May do shot-firing. May be designated according to type of mine, quarry or well, or type of material extracted, or section of the establishment supervised.

7-00.30 Supervisor and General Foreman (Metal Processing).

Supervises production activities of a distinct unit within a metal-processing establishment and controls and co-ordinates the activities of workers in this unit engaged in various occupations:

performs tasks similar to those of *Production supervisor and general foreman (general) (7-00.10)* in a steel mill, foundry or other metal-processing establishment, in which metals are melted, converted, refined, cast, extruded, coated or otherwise treated and processed.

May be designated according to type of process, or unit supervised, or material processed.

7-00.40 Supervisor and General Foreman (Chemical and Related Materials Processing).

Supervises production activities of a distinct unit within an establishment concerned with the processing of basic chemical components and related materials, including petroleum refining and preparation of paper pulp, and controls and co-ordinates activities of workers in this unit engaged in various occupations:

performs tasks similar to those of *Production supervisor and general foreman (general) (7-00.10)* in a production unit in which basic chemical components and related materials are crushed, ground, mixed, blended, cooked, roasted, filtered, heat-treated, refined or otherwise processed.

May be designated according to type of process, or unit supervised, or material processed.

7-00.50 Supervisor and General Foreman (Manufacturing of Machinery and Metal Products).

Supervises production activities of a distinct unit within an establishment concerned with manufacturing and assembly of mechanical equipment and metal products, such as machinery, precision instruments and scientific apparatus, transport equipment and metal parts of various kinds, and controls and co-ordinates the activities of workers in this unit engaged in various occupations:

performs tasks similar to those of *Production supervisor and general foreman (general) (7-00.10)* in a production unit in which metal products are fabricated or mechanical equipment (other than electrical and electronic) is assembled.

May be designated according to unit supervised, or type of product or equipment manufactured. May also supervise other workers engaged primarily in installation of mechanical equipment or metal products in places of use.

7-00.55 Supervisor and General Foreman (Manufacturing and Installation of Electrical and Electronic Equipment).

Supervises production activities of a distinct unit within an establishment concerned with the manufacture of electrical and electronic equipment and controls and co-ordinates the activities of workers in this unit engaged in various occupations:

performs tasks similar to those of *Production supervisor and general foreman (general) (7-00.10)* in a production unit in which electrical and electronic equipment is manufactured.

May supervise other workers engaged primarily in installation of electrical and electronic equipment in places of use. May be designated according to unit supervised, or equipment manufactured, or type of installation carried out.

7-00.60 Supervisor and General Foreman (Fabrication of Products of Paper, Plastics, Rubber, Chemical and Synthetic Materials).

Supervises production activities of a distinct unit within an establishment concerned with the fabrication of products from paper, rubber, plastics or other synthetic materials or the manufacture of pharmaceutical and chemical products, and controls and co-ordinates the activities of workers in this unit engaged in various occupations:

performs tasks similar to those of *Production supervisor and general foreman (general) (7-00.10)* in a production unit in which products of paper, rubber, plastics or other synthetic materials are fabricated or pharmaceutical and other chemical products are manufactured.

May be designated according to unit supervised, or type of product manufactured, or method of fabrication.

7-00.65 Supervisor and General Foreman (Food and Beverages Processing).

Supervises production activities of a distinct unit within an establishment in which foodstuffs and beverages are processed or manufactured on an industrial basis, and controls and co-ordinates the activities of the workers in this unit engaged in various occupations:

performs tasks similar to those of *Production supervisor and general foreman (general) (7-00.10)* in a production unit in which foodstuffs and beverages are processed.

May be designated according to type of process, or unit supervised, or product made.

7-00.70 Supervisor and General Foreman (Production of Textiles and Clothing Manufacturing).

Supervises production activities of a distinct unit within an establishment in which textiles are produced or clothing is manufactured, and controls and co-ordinates the activities of the workers in this unit engaged in various occupations:

performs tasks similar to those of *Production supervisor and general foreman (general) (7-00.10)* in a production unit in which textiles are produced or in which clothing is manufactured.

May be designated according to unit supervised, or product manufactured, or process employed.

7-00.75 Supervisor and General Foreman (Construction Work).

Supervises, on a construction site, activities of a distinct unit of a construction enterprise which executes a construction project, or one or more phases thereof, and controls and co-ordinates the activities of the workers in this unit engaged in various occupations:

performs tasks similar to those of *Production supervisor and general foreman (general) (7-00.10)* but supervises a unit which executes one or more phases of a construction project, or the complete project, such as erection of buildings, bridges or other structures, or constructing dams, harbours, canals, railways, roads, airfields or other earthworks.

May recommend improvements and modifications in design and construction techniques. May be designated according to type of construction project executed or method of construction employed.

7-00.80 Supervisor and General Foreman (Production and Distribution of Electricity, Gas and Water).

Supervises the activities of a distinct unit within an establishment concerned with the production and distribution of electricity, steam or gas, or with water supply, sewage disposal and treatment, or refrigeration and assimilated services, and controls and co-ordinates the activities of the workers in this unit engaged in various occupations:

performs tasks similar to those of *Production supervisor and general foreman (general) (7-00.10)* in electric power plants, gas works, waterworks, sewage disposal and treatment plants, steam supply plants, refrigeration and assimilated works.

May be designated according to unit supervised, or type of utility or service.

7-00.90 Other Production Supervisors and General Foremen.

This group includes other production supervisors and general foremen not elsewhere classified. Included are those performing tasks similar to those of *Production supervisor and general foreman (general) (7-00.10)* in a production unit concerned with an activity such as printing; processing non-metallic minerals; processing skins, pelts and leathers; fabricating wood, stone, clay and glass products; fabricating products made from assorted materials.

7-1 MINERS, QUARRYMEN, WELL DRILLERS AND RELATED WORKERS

Workers in this minor group extract solid minerals from underground or surface mines and quarries, prepare the extracted minerals for distribution or further processing, and erect and operate drilling plant and perform related tasks in the sinking and operation of wells. They are classified in the unit groups listed below:

7-11 Miners and Quarrymen.
7-12 Mineral and Stone Treaters.
7-13 Well Drillers, Borers and Related Workers.

Operators of earth-moving equipment in mines and quarries are classified in unit group 9-74; crusher-grinder operators employed in chemical and related processing plants in unit group 7-41; well diggers who work with hand tools in unit group 9-59; and riggers (oil and gas well drilling) in unit group 9-72.

7-11 Miners and Quarrymen

Workers in this unit group extract solid minerals from underground or surface mines and quarries.

Their functions include:

extracting coal, ores and other solid minerals from undergound or surface mines;

extracting granite, limestone, slate, flint or other kinds of stone from quarries;

setting and operating machines which cut channels in mine workface, drill holes into mine or quarry workface for blasting or extract coal automatically from coal seam;

determining positions and force of explosions required, and charging and firing explosives, to dislodge solid mineral from mine or quarry workface;

cutting, fitting and installing wood or steel props, pillars and arches to support walls and roofs of underground workings;

collecting samples of coal or ore for laboratory analysis;

extracting chalk, clay, gravel or sand from open pits;

performing other tasks related to the foregoing.

7-11.05 Miner (General).

Extracts coal, ores or other solid minerals from underground or surface mine:

hews minerals with hand or pneumatic pick; drills holes in workface with hand or pneumatic drill; inserts, tamps and fires explosives; shovels dislodged mineral into mine cars or onto conveyor; pushes cars to haulageway; installs chutes or staging, and wood or steel props, pillars and arches to support walls and roofs; extends car rails to workface.

Usually specialises in mining particular mineral and is designated accordingly.

7-11.10 Quarryman (General).

Extracts granite, limestone or other kinds of stone from quarry:

drills holes in quarry workface with hand or pneumatic drill; inserts, tamps and fires explosives; breaks large blocks of dislodged stone into smaller pieces; attaches hoisting cable-hooks or slings to remove dislodged stone from quarry.

Usually specialises in quarrying particular stone and is designated accordingly.

7-11.20 Cutting-Machine Operator (Mine).

Sets and operates machine which cuts channels in mine workface:

sets machine in position and starts cutting mechanism; guides cutter bar to cut channel across or down side of workface; services machine and does minor repairs.

May lay rails on which machine travels.

7-11.30 Drilling-Machine Operator (Mine and Quarry).

Sets and operates machine which drills holes into mine or quarry workface for blasting:

sets machine in position, selects and inserts drill and connects power and water supplies; operates controls to start drill and water flow; advances drill into workface, exerting pressure as necessary; replaces blunt drills, and selects and inserts longer drills as hole deepens; services machine and does minor repairs.

May insert, tamp and fire explosives in holes. May be designated according to type of drill or mounting used.

7-11.40 Continous Mining-Machine Operator.

Operates self-propelled continuous-mining machine to mine coal underground:

drives machines into position at coalface; advances ripper bar or boring head into coal seam; starts machine to extract coal and convey it to floor or haulage car at rear; adjusts machine and changes cutting tools as necessary; services machine and does minor repairs.

May raise hydraulic safety bar to support roof above machine until *Underground timberman (7-11.60)* completes his work. May be designated according to trade name of machine.

7-11.50 Shot-Firer (Mine and Quarry).

Determines positions and force of explosions required, and charges and sets off explosives to dislodge coal, ore, rock or other solid mineral from mine or quarry work-face:

determines positions of explosions required and instructs *Drilling-machine operator (mine and quarry) (7-11.30)* to drill holes accordingly; inspects blasting area to ensure observance of safety regulations; decides required quantity of explosive and inserts in drilled holes; attaches fuses or wires to detonators and inserts them in holes; tamps holes with clay, rock dust, sand or other materials; signals to other workers to take cover; splits end of fuse or connects wire to exploder; lights fuse or depresses handle of exploder to fire explosive.

May, if working underground, test blast area for inflammable gas and check roof supports.

7-11.60 Underground Timberman.

Cuts, fits and installs wood or steel props, pillars and arches to support walls and roofs of mines and other underground workings:

cuts and shapes timbers to size and wedges, blocks, nails and bolts them into position to support walls and roofs of underground workings; fits and installs steel props, arches and girders; makes and installs ladders, chutes, cribs and other wooden frameworks; repairs and resets defective supports.

7-11.70 Sampler (Mine).

Collects small amounts of coal or ore from specified locations in mine for laboratory analysis:

collects samples of coal or ore from various parts of mine and from cars, conveyors, chutes and other sources predetermined to provide representative samples; records origin of samples, makes identification tags and places samples in bags to forward to laboratory.

May pulverise samples by machine prior to bagging. May plot sources of samples on mine map.

7-11.90 Other Miners and Quarrymen.

This group includes miners and quarrymen not elsewhere classified, for example those who remove wood and steel supports from disused workings; direct high-pressure streams of water against gravel banks to force gravel into sluices from which metalliferous minerals are recovered; cut stone from quarry faces with power-driven saws; split sample cores of mineral-bearing rock strata removed from diamond core drills for laboratory analysis; or extract chalk, clay, gravel or sand from open pits.

7-12 Mineral and Stone Treaters

Workers in this unit group prepare ores, stone and other minerals for distribution or further processing.

Their functions include:

drilling holes and driving wedges into quarried stone to break it into slabs or blocks;

operating machines which crush and break lumps of mineral (except chemicals) to required size;

tending gravity device to separate slate and rock from coal;

operating grinding mill to pulverise stone and mineral-bearing ores;

operating batteries of jigs or floatation machines to separate mineral from gangue;

tending equipment which precipitates gold or silver from cyanide solution onto zinc;

performing related tasks.

7-12.20 Stone Splitter.

Drills holes and drives wedges into quarried stone to break it into slabs or blocks:

marks off stone to required size and according to grain; connects compressed-air line to percussion-type drill and inserts bit in chuck; determines number, depth and positioning of holes to break stone evenly and cleanly; drills holes to required depth; places strips of shaped steel in holes and metal or wooden wedges between strips; drives in wedges evenly with hand hammer until stone cracks.

May make holes by hammering. May use special hammer to split stone without drilling or making holes.

Stone cutters and carvers are classified in unit group 8-20.

7-12.30 Mineral-Crushing-Machine Operator.

Operates machine which crushes and breaks lumps of mineral (except chemicals) to required size:

regulates flow of mineral from conveyors, chutes or bins into crusher, or loads mineral into hopper of machine; forces large lumps of mineral between crusher jaws with bar and breaks oversize lumps with sledgehammer; maintains uniform flow of crushed mineral to screens for sizing or to rolls for further crushing; cleans and services machine and does minor repairs.

May be designated according to type of mineral crushed.

Crusher operator (chemical and related processes) is classified in 7-41.20.

7-12.40 Mineral-Milling-Machine Operator.

Operates ball mill that pulverises stone mineral-bearing ores or coal for further processing:

regulates flow of crushed materials from conveyors, chutes or bins into mill; adds steel balls to mill as needed or specified; starts and runs mill for specified time or regulates inflow of materials when tending continuous mill.

May operate mill to mix materials for wet or dry grinding. May be designated according to type of mill operated or material ground.

7-12.50 Jig Tender.

Operates battery of jigs which separate mineral from gangue:

regulates pulsating flow of water through screens in bottom of jigs or speed of reciprocal motion of screens; controls flow of mined material and water into jigs, observes operation and adjusts controls as necessary to obtain efficient separation; cleans and services machine and does minor repairs.

7-12.60 Floatation Man.

Operates floatation machine which separates mineral from gangue:

controls flow of mined material, water and floatation reagents into cells of machine; regulates speed of agitators in cells which force mineral to surface and into containers; observes operation and adjusts controls as necessary to obtain efficient separation; cleans and services machine and does minor repairs.

May be designated according to mineral separated.

7-12.70 Precipitator.

Tends equipment which precipitates gold or silver from cyanide solution onto zinc:

packs zinc shavings into compartmented zinc boxes; regulates flow of cyanide solution through boxes where gold or silver precipitates on zinc; shuts off flow of solution and turns on water; agitates shavings to remove precipitate and drains off water and precipitate (slime) from boxes; treats slime with sulphuric acid and filters it in filter press; washes precipitate residue with water under pressure and dries it with compressed air.

May tend equipment which precipitates gold or silver onto zinc dust in mixing cones.

7-12.80 Cone Operator (Mine).

Tends gravity device (cone) to separate slate and rock from coal:

starts conveyor and regulates flow of material into top of cone; regulates flow of water into bottom of cone and maintains specified pressure to carry coal off with overflow while rock and slate fall to bottom; opens slate gate at bottom to draw off impurities.

7-12.90 Other Mineral and Stone Treaters.

This group includes mineral treaters not elsewhere classified, for example those operating equipment to dissolve gold and silver in cyanide solution to separate it from gangue; removing impurities from minerals by means of running water; operating vibrating and oscillating screens or tables to size or separate minerals; tending machines that compress finely ground minerals or coal into briquettes or pellets; and operating machines which separate minerals by magnetism.

7-13 Well Drillers, Borers and Related Workers

Workers in this unit group erect and operate drilling plant and perform related tasks in the sinking and operation of wells.

Their functions include:

preparing and operating derrick pipe-handling devices and slush pumps;

operating rotary or percussion drilling plant to drill oil or gas wells;

cementing openings in walls or casings of oil or gas wells;

cleaning and servicing oil or gas wells and repairing and replacing pumping rods, casings and tubings;

treating oil and gas wells with acid to increase their production;

setting up and operating drilling plant to drill wells or bores other than for oil or gas;

performing related tasks.

7-13.20 Derrickman (Oil and Gas Wells).

Sets up and operates derrick equipment and pumps to circulate mud through drill hole:

sets up pulley supports at top of derrick and strings cables though pulleys and blocks; attaches and detaches lifting equipment to lower or raise sections of drill pipe into or out of borehole; weighs clay and mixes drilling mud to required consistency; controls pumps to circulate mud through drill pipe and borehole while drilling progresses; assists in other rigging tasks and in dismantling equipment; maintains and repairs pulleys, blocks and cables; relieves and assists in supervising other members of drilling crew.

May service pumps.

Oil and gas well-drilling rigger is classified in 9-72.50.

7-13.30 Rotary Driller (Oil and Gas Wells).

Operates rotary drilling plant to drill oil or gas wells:

selects and fixes drill bits according to nature of strata encountered; examines slush pumps to ensure proper circulation and consistency of drilling mud; observes pressure gauge and controls pressure and speed of rotation of tools in borehole; connects and disconnects sections of drill pipe being run into or out of well; manipulates levers, pedals and brakes to control machinery which supplies power for lowering or raising drill pipe and casing into or out of well; examines cores or cuttings to ascertain nature of strata encountered; uses special tools to retrieve broken drill equipment from borehole; caps well or regulates valves to control outflow of oil or gas; keeps drilling records.

May explode charge in borehole to start flow of oil or gas. May set up drilling plant.

7-13.40 Cable Driller (Oil and Gas Wells).

Operates cable (percussion) drilling plant to drill oil or gas wells:

selects drill bits and assembles drilling tools on end of cable; regulates stroke and force of impact with which bit strikes bottom of borehole; examines drillings to ascertain nature of strata encountered; connects and disconnects casing and tubing sections and operates controls to lower or raise them into or out of borehole; uses special tools to retrieve broken drill equipment from borehole; caps well or regulates valves to control outflow of oil or gas; keeps drilling records.

May explode charge in borehole to start flow of oil or gas. May set up drilling plant.

7-13.50 Cementer (Oil and Gas Wells).

Cements openings in walls or casings of oil or gas wells:

studies rock formations and well conditions and determines method of cementing; calculates quality and quantity of cement required; supervises mixing of cement and pumping of it to predetermined sections of well; determines solidification time and tests completed job by emptying well and testing for seepage.

May supervise workers locating faults in casing, mixing drilling fluids and regulating pressure to control unstable wells.

7-13.60 Well Puller (Oil and Gas Wells).

Cleans and services oil and gas wells and repairs and replaces pumping rods, casings and tubings:

operates winching or jacking equipment to raise rods, casings and tubings from well; cleans, straightens and repairs rods, casings and tubings; places plug device into well to control flow of oil or gas; lowers and operates special equipment to clear mud and slush from well; lowers pressure-recording device into well and interprets readings; lowers special tools to retrieve broken drill equipment from well and to clean casing and tubing.

May recover tubing and rods from abandoned wells.

7-13.70 Acidiser (Oil and Gas Wells).

Treats oil and gas wells with acid to increase their production:

studies rock formations and well conditions; determines type, strength and quantity of acid required, duration of treatment and point and method of application; directs setting-up of mixing and pumping equipment; supervises acid blending; controls pumping of acid through tubes to specified rock formations; flushes out excess acid on completion of treatment.

7-13.80 Well Driller and Borer (except Oil and Gas Wells).

Sets up and operates drilling plant to drill wells or bores other than for oil or gas:

erects derrick and connects shafting from power source; selects and fixes drill bits; controls speed and force of drilling; connects and disconnects casing, tubing or rod sections and operates controls to lower or raise them into or out of borehole; operates pumps to remove sludge or debris from borehole.

7-13.90 Other Well Drillers, Borers and Related Workers.

This group includes well drillers, borers and related workers not elsewhere classified, for example those who specialise in operating plant to prepare drilling fluid by mixing clay, sand and water to specified viscosity and pumping it into borehole; devising and applying methods for retrieving broken or lost drilling equipment from borehole; using special test equipment to determine productivity of strata; or starting or renewing flow of oil or gas from well by means of explosives.

7-2 METAL PROCESSERS

Workers in this minor group operate furnaces to smelt, convert, refine, melt and reheat metals; operate metal-rolling mills; pour metal into moulds and operate metal-casting machines; make sand moulds and cores for casting metal; alter the physical properties of metal objects by heating, cooling and chemical treatment; draw and extrude metals to make wire, pipes, tubes and similar products; operate equipment to plate and coat metal products; and perform related tasks. They are classified in the unit groups listed below:

7-21 Metal Smelting, Converting and Refining Furnacemen.
7-22 Metal Rolling-Mill Workers.
7-23 Metal Melters and Reheaters.
7-24 Metal Casters.
7-25 Metal Moulders and Coremakers.
7-26 Metal Annealers, Temperers and Case-Hardeners.
7-27 Metal Drawers and Extruders.
7-28 Metal Platers and Coaters.
7-29 Metal Processers Not Elsewhere Classified.

7-21 Metal Smelting, Converting and Refining Furnacemen

Workers in this unit group operate metal smelting, converting and refining furnaces.

Their functions include:

operating blast furnaces to smelt ores for production of ferrous or non-ferrous metals;

operating furnaces to convert or refine pig-iron or scrap-metal to produce steel;

operating furnaces to convert or refine non-ferrous metals;

performing related tasks.

Workers who operate furnaces to melt metal for casting or reheat metal for forging, pressing or rolling are classified in unit group 7-23.

7-21.20 Blast Furnaceman (Ore Smelting).

Controls the operation of a blast furnace to smelt ores for the production of ferrous or non-ferrous metal:

orders furnace to be charged with raw materials such as coke, flux and ore in alternate layers; operates battery of stoves to supply heated airblast to blast furnace; observes colour of molten metal and reads pyrometer to determine temperature and adjusts controls to regulate temperature or pressure; determines when melt is ready, directs positioning of ladles and taps furnace by breaking clay plug in taphole; opens gates and shutters to direct flow of molten metal or slag along runners into ladle; plugs taphole after ladles are filled, using mud gun, and relines runners with refractory material; obtains samples of molten metal for laboratory analysis, or estimates and records percentage of sulphur and silicon in iron by observing a sample of iron as it cools and by observing slag formation; directs helpers performing the more routine furnace-tending tasks.

7-21.30 Open-Hearth Furnaceman (Steel).

Operates an open-hearth furnace in which scrap-metal and pig-iron are melted and refined to produce steel:

orders furnace to be charged with materials; fires furnace and regulates temperature and purification process by controlling supply of fuel and air; obtains sample of molten metal to test it for carbon content; opens furnace door and shovels or operates mechanical charger to dump additives such as fluorspar, lime and alloys into molten metal; ascertains temperature of metal by reading pyrometer or observing colour of molten metal to determine when to tap furnace; taps furnace by breaking clay plug in taphole to allow molten metal to run off into ladle; skims slag from surface of molten metal using skimming rod; directs helpers performing the more routine furnace-tending activities.

May position oxygen lance in furnace to speed converting process.

7-21.40 Oxygen Furnaceman (Steel Converting).

Operates oxygen furnace and auxiliary equipment to convert pig-iron into steel:

moves controls to position furnace and orders charging; observes temperature gauges and recorders and moves controls to position oxygen lance and regulate flow of oxygen through lance onto charge; starts automatic weighing machine that releases additives onto charging conveyor; moves controls to position transfer car, carrying ladle and slag pots under taphole and to tilt furnace for tapping operation; directs helpers performing the more routine furnace-tending activities.

7-21.50 Bessemer Furnaceman (Steel Converting).

Operates a steel converter in which molten pig-iron is converted into steel:

preheats converter and orders it to be charged with molten pig-iron; controls blower which forces blast of air or oxygen through molten metal; regulates temperature of metal by admitting steam and adding cold pig-iron or scrap steel; ascertains rate of oxidation of elements and composition of steel by observing flame issuing from converter mouth; adds specific percentages of alloys of carbon, manganese and silicon to obtain desired quality of steel; orders pouring of molten steel into ladles; periodically directs relining of converter; directs helpers performing the more routine furnace-tending activities.

May operate levers to tilt converter.

7-21.60 Electric Arc Furnaceman (Steel Refining).

Operates an electric-arc furnace in which high-alloy steel is produced by melting and refining scrap steel:

orders furnace to be charged with steel; switches on current and moves electrodes to form arc between electrodes in charges; sets device which automatically maintains determined length of arc during melting process; sets rheostat to control current and voltage; observes meters and rise and fall of electrodes to see that charge is melting properly; skims slag from surface of molten metal with a skimming bar; ascertains composition of metal by taking sample of molten metal and examining fracture of a cooled piece; observes cooling time of sample to determine fluidity of metal; switches off current and pours molten metal into ladle by tilting furnace; directs helpers performing the more routine furnace-tending activities.

7-21.70 Furnaceman, Non-Ferrous Metal Converting and Refining.

Operates crucible, electric, open-hearth, reverberatory or other furnace for converting or refining non-ferrous metals:

charges furnace; fires or starts furnace; observes melting process, stirs molten metal, and skims slag from surface of metal; regulates furnace heat; ascertains pouring temperature by reading pyrometer; taps furnace or pours molten metal into ladle; directs helpers performing the more routine furnace-tending activities.

7-21.90 Other Metal Smelting, Converting and Refining Furnacemen.

This group includes metal smelting, converting and refining furnacemen not elsewhere classified, for example those who are mainly engaged in making malleable iron in a puddling furnace, or performing one or more specialised tasks in the operation of a furnace, such as charging, operating blast- and heat-regulating systems, tapping, and pouring molten metal into ladles.

7-22 Metal Rolling-Mill Workers

Workers in this unit group operate rolling mills to roll metal.

Their functions include:

operating rolling mills to shape hot steel ingots into blooms, slabs, billets or sheet bars for further processing, or to shape heated semi-finished steel pieces into bars, angles, ties, rails, sheets or other finished forms;

operating continuous mills in which hot steel slabs are passed through a series of rolls (stands) to produce finished plates or sheets in one continuous operation;

operating rolling mills to reduce cold steel strip or sheet to required gauge and impart desired finish;

operating rolling mills to reduce or form hot or cold non-ferrous metal into plate, sheet, foil, wire or rod of specified dimensions;

operating rolls to form seamless tubes and pipes from billets which have been pierced longitudinally;

manipulating controls of a rolling mill according to signals from roller;

performing related tasks.

7-22.20 Hot-Roller (Steel).

Operates rolling mill to shape hot steel ingots into blooms, slabs, billets or sheet bars for further processing, or to shape heated semi-finished steel pieces into bars, angles, ties, rails, sheets or other finished forms:

interprets written or verbal instructions and determines procedure of work; directs setting of rolls and mill and conveyor speeds, and regulation of water sprays; observes operation of mill, inspects products during rolling and directs adjustment of controls as necessary; examines and measures finished products.

May specialise in operating particular type of rolling mill, such as cogging mill, bar mill or blooming mill, and be designated accordingly. May control electronic equipment for automatic rolling of steel shapes according to programmed data.

7-22.30 Continuous-Mill Roller (Steel).

Operates continuous mill in which hot steel slabs are passed through a series of rolling (stands) to produce finished plates or sheets in one continuous operation:

performs tasks similar to those of *Hot-roller (steel) (7-22.20)* but specialises in rolling steel sheets or plates in one continuous operation.

7-22.40 Cold-Roller (Steel).

Operates rolling mill to reduce cold steel strip or sheet to required gauge and impart desired surface finish:

performs tasks similar to those of *Hot-roller (steel) (7-22.20)* but specialises in operating a cold-rolling mill.

May specialise in particular type of product or cold-rolling process and be designated accordingly.

7-22.50 Roller, Non-Ferrous Metals.

Operates rolling mill to reduce or form hot or cold non-ferrous metal into plate, sheet, foil, wire or rod of specified dimensions:

performs tasks similar to those of *Hot-roller (steel) (7-22.20)* and *Cold-roller (steel) (7-22.40)* but specialises in rolling non-ferrous metals.

7-22.60 Seamless Pipe and Tube Roller.

Operates rolls to form seamless pipes and tubes from billets which have been pierced longitudinally:

examines drawings and specifications; selects and installs rolls which form specified outside diameter of tubing; selects and screws plug to a power-driven rod (mandrel) which rotates the plug inside the billet and forms the required inside diameter; starts machine and runs billet through first and successive sets of rolls and over plug on mandrel until internal and external dimensions of tubing meet specifications; examines and measures tubing for defects and for conformity to specifications.

7-22.70 Manipulator (Rolling Mill).

Manipulates controls of a rolling mill according to signals from roller to position ingots or blooms for entry into roll of mill:

moves levers to transfer ingot from entrance table onto entrance conveyor, and to align side guards that guide ingot into rolls; observes rolling process and manipulates controls to turn ingot after each pass; assists rolling mill crew in roll changes and repairs.

7-22.90 Other Metal Rolling-Mill Workers.

This group includes metal rolling-mill operators not elsewhere classified, for example those who assist in rolling operations by guiding and turning metal on conveyors or tables to, from, and through rolls of rolling machine.

7-23 Metal Melters and Reheaters

Workers in this unit group operate furnaces to melt or reheat metals.

Their functions include:

operating furnaces to melt ferrous and non-ferrous metals for casting;

operating furnaces to reheat bars, plates and other stock metal forms prior to forging, power-pressing, rolling or other further processing;

performing related tasks.

7-23.20 Furnaceman, Metal-Melting, except Cupola.

Operates furnace (except cupola) to melt ferrous or non-ferrous metal for casting:

directs charging of electric-arc, crucible, reverberatory or other furnace (except cupola); fires furnace or switches on current, and adjusts furnace controls to build up and maintain required temperature; ascertains temperature of metal from colour of melt and by using pyrometer; determines when melt is ready for casting and taps or tilts furnace to run or pour metal into ladle; directs helpers performing the more routine furnace-tending tasks.

May assist in conveying and pouring melt into moulds. May specialise in operating particular type of furnace and be designated accordingly.

7-23.30 Cupola Furnaceman.

Operates a cupola furnace in which ferrous or non-ferrous metal is melted for castings:

lines bottom and lower parts of furnace with sand; prepares and lights initial charge (coke and kindling wood) on bottom of furnace; orders furnace to be charged with metal, coke and flux in alternate layers; starts blower supplying air blast; observes molten metal dripping into base of furnace; withdraws clay plug from taphole, when required level has been reached, to allow molten metal to run into a ladle; blocks taphole with clay plug to stop flow when ladle is full; opens bottom doors of furnace to allow remaining slag, metal and coke to drop onto floor; chips off cinders and slag from furnace walls and repairs burned parts of wall lining with a mixture of fireclay and water; directs helpers performing the more routine furnace-tending activities.

7-23.40 Furnaceman, Metal Reheating.

Operates furnace to reheat bars, plates and other stock metal forms prior to forging, power-pressing, rolling or other further processing:

fires furnace and regulates controls to build up and maintain specified temperature; charges furnace with metal to be heated; ascertains furnace temperature from colour of metal or using pyrometer; observes heating progress and turns metal about with tongs and bars to obtain uniform and thorough heating; withdraws metal from furnace and moves it to designated working area; directs helpers performing the more routine furnace-tending tasks.

7-23.90 Other Metal Melters and Reheaters.

This group includes metal melters and reheaters not elsewhere classified, for example those who specialise in the production of ferrous or non-ferrous alloys by melting and mixing metals in prescribed percentages; or mainly perform one or more specialised tasks in the operation of a furnace, such as charging, operating blast- and heat-regulating systems, tapping, and pouring molten metal into ladles.

7-24 Metal Casters

Workers in this unit group pour metal into moulds and operate metal-casting machines.

Their functions include:

pouring molten metal into moulds to produce metal castings;

operating centrifugal casting machines to cast cylindrical metal products;

operating die-casting machines to make castings from non-ferrous metals;

operating continuous casting machines to produce tubes and rods from non-ferrous metal;

performing related tasks.

7-24.20 Metal Pourer.

Pours molten metal from ladle into moulds to produce metal castings:

moves ladle from cupola, crucible or furnace to work station, using overhead conveyor for large ladles; tilts ladle to pour off slag or removes it with skimming device; opens spout or tilts ladle to pour metal into sand mould.

May maintain and repair ladle. May be designated according to type of ladle used or metal poured.

7-24.30 Centrifugal Casting-Machine Operator.

Operates centrifugal casting machine to cast pipes, brakedrums, bushings and other cylindrical metal products:

places mould on spinning mechanism; brushes dirt and metal fragments from inside of mould; places and fastens cover on ends of mould; preheats mould with blow torch; starts machine and sprays insulating agent on inside surface of rotating mould; pours molten metal into mould, using hand ladle, and allows mould to spin for specified time to solidify metal against walls; unfastens mould cover and removes casting using tongs or hydraulic ram.

May set machine controls to rotate mould at specified speed. May work at a single station on a multi-station (indexing-type) centrifugal casting machine, and perform only some of the above tasks.

7-24.40 Die-Casting-Machine Operator.

Operates die-casting machine to make castings from non-ferrous metals:

preheats die sections with blow torch, blows metal fragments from die surfaces with airhose, brushes lubricant over and regulates flow of water coolant through dies; ladles molten zinc, aluminium, magnesium or other non-ferrous metal directly into cold chamber machine or into heated reservoir of hot chamber machine; closes and locks dies and activates plunger to force metal into die cavities; removes casting with tongs and inspects it for defects.

May set dies in machine. May cool casting in water. May use gauges to measure castings.

7-24.50 Continuous Rod-Casting-Machine Operator (Non-Ferrous Metal).

Sets up and operates continuous casting machine to produce tubes and rods from non-ferrous metal:

threads graphite die into bottom of crucible which holds molten metal during casting process; places water jacket around die and connects waterlines; inserts metal bar (starting tip) through die into crucible where it provides weld with molten metal; inserts metal extension rod through driving rollers and threads it to starting tip; regulates speed of rollers to draw extension rod, starting tip, and molten metal through die in continuous casting process.

7-24.90 Other Metal Casters.

This group includes metal casters not elsewhere classified, for example those casting jewellery, dental forms or other non-ferrous metal products by hand; casting metal moulds for use in the manufacture of jewellery and other articles.

7-25 Metal Moulders and Coremakers

Workers in this unit group make sand moulds and cores for casting metal.

Their functions include:

making sand moulds by hand on a bench for small metal castings, or on the foundry floor or in a pit for large metal castings;

making sand moulds for metal castings using auxiliary machines;

making sand cores for use in metal moulds by hand or machine;

performing related tasks.

7-25.20 Bench Moulder (Metal).

Makes sand moulds by hand on a bench for small metal castings:

sets half pattern in bottom half of moulding box (drag) on bench, packs fine sand or loam around pattern face, fills box with coarser sand and rams it in with hand tools; turns box over, removes base and dusts surface of drag with parting powder; fits and secures other half of pattern to first half, fixes top half of moulding box (cope) to drag and repeats sand packing, filling and ramming to complete mould; separates drag and cope, removes pattern, cuts channels for pouring metal into mould, positions cores in mould, rejoins and secures drag and cope, fixes channel funnel and lines it with protective sand.

May pierce holes in mould to allow gases to escape. May pour molten metal into mould. May specialise in particular type of bench moulding and be designated accordingly. May cast patterns in non-ferrous metals for use in high production duplicate casting.

7.25.30 Floor and Pit Moulder.

Makes sand moulds on foundry floor or in pit for large metal castings:

performs tasks similar to those of *Bench moulder (metal) (7-25.20)* but specialises in large moulds and is normally assisted by helpers; performs floor and pit moulding tasks such as using lifting equipment to manoeuvre moulding boxes, patterns and cores, finishing surfaces of mould with hand tools, drying mould with heater, using template revolving from spindle in centre of pit to make circular moulds, and building moulds around patterns for very large castings.

7-25.40 Moulder (Machine).

Makes sand moulds for metal castings using auxiliary machines:

performs tasks similar to those of *Bench moulder (metal) (7-25.20)* but uses auxiliary machines to perform some of the mould-making operations, such as packing and ramming sand into moulding box, or turning box and withdrawing pattern.

May specialise in operating particular type of mould-making machine and be designated accordingly.

7-25.50 Coremaker (Hand).

Makes sand cores by hand for use in metal moulds:

cleans core box and dusts it with parting agent; mixes sand and binding substance and rams mixture into box, fixing wires and other reinforcing materials in position; separates box from core and coats core with graphite or other protective substance; makes escape vents for gases released during casting; repairs damaged surfaces of core with hand tools.

May bake or dry cores. May inject special gases into cores to cause chemical reaction which hardens them. May assemble multiple part cores. May use machine to separate core from box.

7-25.60 Coremaker (Machine).

Tends turn-over draw-type machine that makes sand cores for use in casting metal:

clamps box over die on front table of machine and partly fills core box with sand; starts mechanism that jolts table to compress sand in box; positions reinforcing wires in sand, fills box with sand and repeats jolting; clamps metal plate to top of box and moves lever to roll front table over and deposit box, top down, on rear table; pushes rear table down to remove core from core box.

May tend extrusion or blower-type coremaking machine to make sand cores.

7-25.90 Other Metal Moulders and Coremakers.

This group includes metal moulders and coremakers not elsewhere classified, for example those who verify dimensions and shapes of cores for conformance to specifications; tend coremaking machines that extrude sand cores having uniform cross section; tend blower-type coremaking machines to produce sand cores; make clay cores around which ferrous and non-ferrous pipe is cast; those who work as part of a team engaged in the large-scale production of moulds or cores and perform, by hand or machine, only one of the operations involved.

7-26 Metal Annealers, Temperers and Case-Hardeners

Workers in this unit group alter the physical properties of metal objects by heating, cooling and chemical treatment.

Their functions include:

heating metal objects in a furnace and cooling them at a predetermined rate to relieve internal stresses, restore ductility and refine grain structure;

hardening steel objects throughout by heating them in a furnace and quenching them;

imparting a hard skin and tough, ductile core to steel objects by treating them with chemicals, heating and quenching or cooling them;

reheating hardened steel objects in a furnace and quenching them to relieve stresses caused in the hardening process and to impart toughness;

performing related tasks.

Metal bluer is classified in 7-29.20.

7-26.20 Annealer.

Heats metal objects in furnace and cools them at predetermined rate to relieve internal stresses, restore ductility and refine grain structure:

places objects in furnace; sets controls to raise furnace temperature gradually to desired level; checks temperature, using pyrometer, and adjusts controls as necessary to maintain temperature for specified length of time; regulates controls to allow objects to cool slowly in furnace, or removes objects from furnace to cool slowly in air.

May specialise in annealing (or normalising) metal objects in which internal stresses have been caused by welding, bending or cold-working operations.

7-26.30 Hardener.

Hardens steel objects throughout by heating in furnace and quenching them:

performs tasks similar to those of *Annealer (7-26.20)* but at completion of specified heating period removes objects from furnace and quenches them in water, oil, brine or blast of cold air to harden them throughout.

May test hardness of steel objects by means of special instruments.

7-26.40 Case-Hardener.

Imparts hard skin and tough, ductile core to steel objects by treating them with chemicals, heating and quenching or cooling them by one of the following methods:

heats steel objects packed in carbonaceous material for specified time at predetermined temperature in oven-type furnace (carbonising) and then quenches them; heats steel objects in hot potassium or sodium cyanide bath for specific time at predetermined temperature in pot furnace (cyaniding) and then quenches them; heats steel objects in ammonia gas in a retort (nitriding) for specified time at predetermined temperature and then allows them to cool slowly.

May utilise other case-hardening processes. May specialise in case-hardening particular type of article or in using particular type of case-hardening process and be designated accordingly.

7-26.50 Temperer.

Reheats hardened steel objects in furnace and quenches them to relieve stresses caused in hardening process and impart toughness:

places metal objects in furnace; sets controls to raise temperature to desired level; checks temperature, using pyrometer, and adjusts controls as necessary to maintain temperature for specified length of time; removes metal objects from furnace and quenches them in water, oil, brine, molten lead or blast of cold air.

7-26.90 Other Metal Annealers, Temperers and Case-Hardeners.

This group includes metal annealers, temperers and case hardeners not elsewhere classified, for example those who assist heat treaters by loading furnaces, packing metal objects in chemicals, preparing quenching media, and quenching metal objects.

7-27 Metal Drawers and Extruders

Workers in this unit group draw and extrude metals through dies to make wire, pipes, tubes and similar products.

Their functions include:

making wire of specified diameter by hand on a draw bench or by setting and operating a wire-drawing machine;

setting and operating a machine to draw seamless metal tubing;

setting and operating a hydraulic press to extrude metal rods, bars and seamless tubing;

performing related tasks.

7-27.20 Wire Drawer (Hand).

Makes wire of specified diameter by hand on a draw bench:

sets up die or series of graduated dies; tapers end of hot or cold wire or rod by hammering or filing and threads it through dies; draws wire or rod through dies with pincers until required diameter is obtained; lubricates metal to facilitate drawing.

May specialise in drawing particular type of wire and be designated accordingly.

7-27.30 Wire Drawer (Machine).

Sets and operates machine to make wire of specified diameter:

sets up die or series of graduated dies; tapers end of hot or cold wire or rod by hammering or filing, threads it through dies and attaches it to automatic winding drum; starts drum to draw wire or rod through dies until required diameter is obtained; lubricates metal to facilitate drawing.

May specialise in drawing particular type of wire or in operating particular type of machine and be designated accordingly.

7-27.40 Seamless Pipe and Tube Drawer.

Sets and operates machine to draw seamless ferrous and non-ferrous tubing of specified diameter:

sets drawing die in diehead and plug die on rod; centres plug die in opening of drawing die; loads rough tube into position on draw bench; pushes or pulls tapered end of rough tube through die block and secures it with tongs to travelling chain or movable carriage; sets chain or carriage in motion to pull tube over plug die to shape internal diameter, and through drawing block to shape external diameter; stops chain or carriage when length is drawn and removes holding tongs; repeats operation until specified diameter is obtained.

May specialise in drawing particular type of metal or tube and be designated accordingly.

7-27.50 Extruder Operator (Metal).

Sets and operates hydraulic extrusion press to make rods, bars and seamless tubing:

examines drawings and other specifications; selects die, billet container and mandrel and fixes them in press; directs removal of hot billet from furnace and loading into billet container; directs positioning of upsetting device above billet container and lowers ram of press to shape billet to fit container; moves levers to cause ram to descend and press hot metal through dies, and regulates speed of extrusion; raises ram and lowers cut-off device to shear off residue and free extruded tube or rod from die.

7-27.90 Other Metal Drawers and Extruders.

This group includes metal drawers and extruders not elsewhere classified, for example those who assist in the operation of a hydraulic extrusion press by feeding billets to press and positioning upsetting and cut-off devices.

7-28 Metal Platers and Coaters

Workers in this unit group operate equipment to plate and coat metal products.

Their functions include:

setting and controlling electroplating equipment;

operating hot-dip equipment to coat iron and steel products;

coating wire with non-ferrous metal by automatic machine;

spraying molten metal on metal products to provide a protective or decorative coating or to build up worn or damaged surfaces;

performing related tasks.

7-28.20 Electroplater.

Sets and controls equipment to coat metal articles with non-ferrous metal by electrolysis:

cleans metal article by scouring, immersion in chemical bath or electrolytically; immerses article in plating solution, suspending it from cathode rod (negative terminal), and suspends piece of plating metal from anode (positive terminal); sets and adjusts controls to pass required amount of electric current from anode to cathode, according to thickness of coating required; removes article at completion of coating and rinses and dries it by hand or machine.

May mix plating solution and check its strength during plating. May recover residue of precious metals from vats after plating is completed. May specialise in particular plating material and be designated accordingly.

7-28.30 Hot-Dip Plater.

Operates hot-dip equipment to coat iron and steel products with corrosion-resistant non-ferrous metal:

regulates temperature in dipping tank and adds coating metal and chemicals to maintain specified levels and mixtures in cleaning, fluxing and dipping tanks; places metal products on conveyor or in wire baskets; immerses products in chemical solution to clean off scale and grease; lowers products into tank of ammonium chloride or other flux to protect surface from oxidation and facilitate adherence of metal coating; dips products into tank of molten non-ferrous metal, such as tin or zinc; removes coated products from tank after specified time and cools them in centrifuge, water tank or cooling room; inspects products for even and complete coating, smoothes coating using wire brush and file, and returns inadequately coated products for reprocessing; scoops dross from tank.

May be designated according to type of coating applied.

7-28.40 Wire-Coating-Machine Operator.

Coats wire with non-ferrous metal by automatic machine:

mounts coil of wire on machine, threads end through cleaning, flux and molten-metal tanks and fastens it to rewinding spindle; adjusts wipers located after each bath and starts machine; regulates speed of wire through machine and temperature of tanks.

May test acid cleaning bath with hydrometer and add chemicals to maintain strength of mixture.

7-28.50 Metal Sprayer.

Sets and operates equipment to spray molten metal on metal products to provide protective or decorative coating or to build up worn or damaged surfaces:

selects nozzle and fixes it to sprayer; inserts wire of required type of metal into sprayer; adjusts flow of oxygen and acetylene or other gases through sprayer and ignites them to melt wire; admits compressed air to force molten wire against surface; directs spray of metal on object until coat of proper thickness has been applied.

May prepare surfaces prior to spraying. May use sprayer in which wire is melted by means of electric arc.

7-28.90 Other Metal Platers and Coaters.

This group includes metal platers and coaters not elsewhere classified, for example those who specialise in coating, colouring or oxidising surfaces of metal articles by dipping them in acid, gilding, staining or hot chemical solutions; treating aluminium or aluminium alloy articles electrically to produce an oxidised finish (anodising); coating iron or steel products with zinc by heating them in closed boxes containing a powdered zinc compound (sherardising).

7-29 Metal Processers Not Elsewhere Classified

Workers in this unit group perform metal-processing tasks not classified elsewhere.

Their functions include:

imparting a blue, rust-resistant, decorative finish to metal articles by treating them with chemicals and heating them;

semi-finishing the surfaces of cast metal articles by hand and machine;

operating equipment to clean metal articles in preparation for electroplating, galvanising, enamelling or similar finishing processes.

7.29.20 Metal Bluer.

Impart blue, rust-resistant, decorative finish to metal articles by treating them with chemicals and heating them:

packs articles in bone chips or chemicals and places them in furnace; regulates furnace controls to raise temperature to desired level, using pyrometer to ascertain temperature; removes articles from furnace when heating is completed and inserts them in vats of chemical solution; removes articles from vats when bluing is completed and washes them in oil.

7-29.30 Casting Finisher.

Semi-finishes the surfaces of cast metal articles by hand and machine:

removes unrequired projections with hand or pneumatic chisel; smooths rough edges and surfaces using hand file or rotary grinder.

May operate shot- or sandblasting equipment to clean and smooth castings. May specialise in one of above tasks and be designated accordingly.

7-29.40 Metal Cleaner.

Operates equipment to clean metal articles in preparation for electroplating, galvanising, enamelling or similar finishing processes:

removes shavings, dirt and rust spots from articles, using airhose, file, or sandpaper; loads articles on conveyer which carries them through series of chemical and rinsing baths, or places them on racks or in containers and immerses them in chemical and rinsing solutions, to remove remaining scale and grease; regulates temperatures of solutions and adds chemicals to maintain their consistency; drains, cleans, and refills tanks with chemicals.

My operate ultrasonic metal-cleaning equipment and be designated accordingly.

7-29.90 Other Metal Processers.

This group includes other metal processers not elsewhere classified.

7-3 WOOD PREPARATION WORKERS AND PAPER MAKERS

Workers in this minor group season and preserve wood; operate machines to saw wood, cut veneer, make plywood and otherwise prepare wood for use; prepare pulp for making paper; and make paper by hand or machine. They are classified in the unit groups listed below:

7-31 Wood Treaters.
7-32 Sawyers, Plywood Makers and Related Wood-Processing Workers.
7-33 Paper Pulp Preparers.
7-34 Paper Makers.

7-31 Wood Treaters

Workers in this unit group season and preserve wood.

Their functions include:

operating steam-heated kilns to season wood;
treating wood with chemicals to protect it against decay or parasites;
performing related tasks.

7-31.20 Wood-Seasoning Worker.

Operates steam-heated kiln to season wood:

supervises loading and placing of kiln cars in kiln; regulates flow of steam into kiln and heating pipes; adjusts heating and humidity controls as wood dries out; directs removal of cars when seasoning is completed; records amount of wood dried and conditions under which it was dried.

May test wood sample for moisture content to assist in determination of kiln treatment required. May season wood by desapping, vacuum drying or infra-red ray treatment.

7-31.30 Wood-Treating Worker.

Treats wood with chemicals to protect it against decay or parasites:

heats chemicals to specified temperature; dips wood into chemical solution; controls temperature of solution and period of immersion to complete impregnation.

May brush or inject chemicals into wood or treat it with gas. May season wood before impregnating.

7-31.90 Other Wood Treaters.

This group includes wood treaters not elsewhere classified, for example those who are mainly engaged in operating incising machines to perforate wood and facilitate penetration of preservatives; or impregnating wood products with fireproofing chemicals.

7-32 Sawyers, Plywood Makers and Related Wood-Processing Workers

Workers in this unit group operate machines to saw wood, cut veneer and make plywood and otherwise prepare wood for further use.

Their functions include:

setting and operating one or more sawing machines in a sawmill;
setting and operating multiple-blade sawing machines to cut uneven edges of rough boards straight and square;
setting and operating band-saw machines to saw logs into planks or boards;
setting and operating machines to cut veneer;
operating plywood core-laying machines;
operating hot-plate plywood presses;
grading wood according to quality and size;
performing related tasks.

7-32.10 Sawmill Sawyer (General).

Sets and operates one or more sawing machines in a sawmill:

directs placing of log or planks on machine carriage; sets machine to saw wood to specifications; operates machine to saw logs into planks, planks into boards of lesser thicknesses, or squared logs into boards; cuts planks and boards to standard lengths and straightens and squares their edges and ends.

May sharpen saws and clean and oil machines.

7-32.20 Edge Sawyer.

Sets and operates a multiple-blade sawing machine to cut uneven edges of rough boards straight and square:

lays board on edging table and spaces and sets saw blades to cut board of highest possible quality; adjusts power-feeding mechanism to thickness of board; pushes board into feed rollers which carry it forward between saws.

May replace broken or dull saw blades and clean and oil machine.

7-32.30 Band-Saw Operator.

Sets and operates band-saw machine to saw logs into planks or boards:

directs placing of log on carriage of machine; sets holding spikes and adjusts carriage blocks to align log for sawing; operates carriage to feed log into saw blades and starts saw to cut log; observes exposed face of log to determine grade and size of further cuts and adjusts setting of carriage blocks accordingly; operates mechanical log turner to turn log over for subsequent cuts.

May change saw blades. May operate particular type of band sawmill and be designated accordingly.

7-32.40 Veneer Cutter.

Sets and operates rotary lathe, slicer or other woodworking machine to cut veneer from logs:

directs placing of log on machine; sets cutting mechanism to cut veneer to specified thickness; operates machine to cut veneer.

May operate power shear to cut veneer into sheets. May replace cutting tools and clean and oil machine. May operate particular type of veneer-cutting machine and be designated accordingly.

7-32.50 Plywood Core-Laying-Machine Operator.

Operates machine to lay face and core veneer sheets in sequence and spread glue on core sheets to form plywood panels:

starts machine and observes its operation; adjusts and synchronises conveyors, mechanical feed arms, tension on glue-spreading rollers and flow of glue, as necessary; controls conveyor to move stacked plywood panels to hotplate presses.

7-32.60 Plywood Press Operator.

Operates hot-plate press to bond glue-coated veneer sheets together to form plywood:

sets temperature and pressure controls of press and releases steam to heat plates; loads veneer sheets and caul boards into press; operates controls to bring plates of press together and subject veneer sheets to heat and pressure to cure, glue, and convert them into plywood; unloads plywood from press and cleans glue from caul boards.

May rub edges of plates with paraffin to facilitate loading and unloading. May record daily production.

7-32.70 Wood Grader.

Examines dressed or rough-sawn wood and sorts it according to quality and size:

examines wood for defects such as knots, faulty edges, stains and unsatisfactory machine work; returns faulty pieces for further machining; sorts and marks satisfactory pieces according to quality and size.

May keep record of defective wood.

7-32.90 Other Sawyers, Plywood Makers and Related Wood-Processing Workers.

This group includes sawyers, plywood makers and related wood-processing workers not elsewhere classified, for example those who are mainly occupied in peeling bark from logs preparatory to sawing or veneer-cutting; operating power saws to cut logs into specified barrel stave lengths; operating banks of circular saws to cut out defective sections of boards (trimming); or operating edge-gluing machines to join veneer strips into sheets.

7-33 Paper Pulp Preparers

Workers in this unit group prepare pulp for making paper.

Their functions include:

operating grinding machines to reduce logs to pulp;

operating chipper machines to reduce logs to chips for making pulp;

operating digesters to produce pulp from materials such as wood, rags, esparto, straw or waste paper;

operating machines to bleach wood pulp, rags, esparto, straw or waste-paper pulp;

operating machines which mix, beat and hydrate pulp and other ingredients to prepare stuff for making paper;

performing related tasks.

7-33.20 Wood Grinder.

Operates machine to grind logs or wood blocks into fibre used in making paper pulp:

throws wood into grinder pocket and actuates hydraulic piston that presses wood against revolving grindstones, or tends conveyor that feeds wood to machine hopper; sets watersprays to cool grindstones and control consistency of pulp; turns handwheel to regulate flow of pulp from discharge end of machine; observes temperature gauges or colour of pulp for evidence of burns caused by faulty grindstones; loosens jammed blocks or logs and notifies supervisor if repair is necessary.

May be designated according to type of grinding machine operated.

7-33.30 Chipperman.

Operates chipper machine to reduce logs to chips for making pulp:

starts chipper disc and conveyor which transports log to machine; adjusts controls to regulate conveyor and elevator system to lower logs against chipper disc according to size of log and speed of cutting; uses hoist to remove jammed logs from machine chute; replaces worn knives on chipper disc.

7-33.40 Digester Operator.

Operates rotary or stationary boiler (digester) to produce pulp and to remove impurities from materials such as wood, rags, esparto, straw, or waste paper by chemical process in the manufacture of paper pulp:

supervises charging of digester with material and chemicals; admits steam into digester to raise temperature and pressure; observes recording instruments and adjusts valves to maintain required temperature and pressure; tests samples by titration or standard colour test to determine completion of cooking process; drains liquids from digester; supervises removal of cooked pulp from digester.

May be designated according to materials processed or chemicals used.

7-33.50 Bleacher Operator.

Operates machine that bleaches material, such as wood pulp, rags, esparto, straw or waste-paper pulp:

charges machine with material and bleaching solution and starts agitator; admits steam to heat mixture and regulates valves to control temperature; observes bleaching process and adjusts controls as necessary; takes samples of pulp for laboratory testing; transfers bleached material into washer and washes it with water sprays; transfers washed pulp into blending tank and mixes several batches to obtain uniform quality.

May add chemicals during bleaching process and make chemical or electrolytic tests. May prepare bleaching solutions and be designated accordingly.

7-33.60 Beater Operator.

Operates machine which mixes, beats and hydrates pulp and other ingredients to prepare stuff for making paper:

supervises charging of machine with pulp, fillers, size, dyes, alum and other chemicals; sets and adjusts beater roller for desired degree of hydration; examines stuff for consistency and size of fibres and sends samples to laboratory for testing; transfers completed stuff to storage tank and starts agitator to maintain consistency.

May mix and cook colouring matter for dyeing stuff in machine.

7-33.90 Other Paper Pulp Preparers.

This group includes paper pulp preparers not elsewhere classified, for example those mainly occupied in operating machines which cut rags to size for cooking, bleaching or defibring prior to making pulp; screening pulp stock, pumped from digester, to separate coarse fibres from pulp; operating machines which eliminate surplus water and impurities from fibrous material prior to beating; operating machines which refine pulp by brushing out knots and shortening fibres.

7-34 Paper Makers

Workers in this unit group make paper by hand or machine.

Their functions include:

operating section of paper-making machines in which wet pulp is formed into paper or in which paper is dried, calendered, wound, slit and rewound;

operating supercalender machines to impart gloss and finish to surface of paper;

operating machines to glaze or impregnate paper with coating mixture;

making high-quality paper by hand;

performing related tasks.

7-34.20 Paper-Making-Machine Operator (Wet End).

Operates section of machine in which wet pulp is formed into paper:

starts flow of stuff from storage chest through rotary screens to machine; adds water as necessary to thin stuff; removes dirt and other foreign matter from screens and regulates flow of stuff to wire-mesh belt; co-ordinates speed of belt and flow of stuff to obtain paper of desired weight; sets machine controls for width, thickness and moisture content of paper; threads formed paper between press rolls; supervises machine crew drying, sizing, calendering, winding and cutting paper.

May weigh samples of paper and install dandy rollers to impress watermark in paper.

7-34.30 Paper-Making-Machine Operator (Back End).

Operates section of paper-making machine in which paper is dried, calendered, wound, slit and rewound:

threads paper through drier and calender rollers; winds end of paper around reel or blows it around reel with compressed air; adjusts controls to regulate tension of paper, temperature of drier rollers and pressure of calender rollers; examines paper for defects, such as dirt, slime, spots, holes and wrinkles, and marks defective portions for removal at reel; directs workers in slitting and rewinding paper.

May operate size tub when surface sizing is desired and spray paper with steam, water, or dyes to obtain specified finish.

7-34.40 Supercalender Operator.

Operates supercalender machine to impart gloss and finish to surface of paper:

positions roll of paper on reel stand of machine, using crane of hoist; threads paper between machine rolls and wraps end around rewinder reel; adjusts controls to regulate tension of paper, temperature and pressure of rollers, and application of steam to paper; examines paper for dirt, slime, spots and wrinkles, and ensures correct compactness of winding; mends breaks in paper with glue or mending tissue and heated flat-iron; tests paper samples for finish and gloss with special instrument.

7-34.50 Coating-Machine Operator.

Operates machine to glaze or impregnate paper with coating mixture:

adjusts rollers, or aligns and fastens brushes, in machine; positions roll of paper on feed rack and threads paper through rollers; admits coating mixture into machine tank; starts machine, and adjusts tension of paper and pressure of rollers; regulates temperature of drying roller; observes coating process, examines paper for defects, such as unevenness of colour, wrinkles or breaks, and makes necessary adjustments or repairs.

May be designated according to coating material used.

7-34.60 Paper Maker (Hand).

Makes, by hand, paper of high quality and durability for bank notes, documents, account books, drawings and other purposes:

fits bevelled wooden frame (deckle) on wire-mesh mould; dips mould with deckle into paper pulp and brings it up level; shakes mould to felt fibres of pulp together and to obtain correct sheet formation as water drains off through mould; removes deckle, turns mould over, and deposits sheet on wet felt; forms pile of alternate felts and sheets, and presses it in power press; separates sheets from felts and lays sheets in packs; represses packs for specified period; separates sheets from compressed pack and suspends them on soft ropes, or lays them out on hessian sheets to dry.

7-34.90 Other Paper Makers.

This group includes paper makers not elsewhere classified, for example those mainly occupied in making paper board or laminated or crepe paper; making imitation hand-made paper on a cylinder mould machine; making sizes of glue, starch, rosin and other materials for surface treatment of paper; operating machines that waterproof paper by coating it with wax; coating paper by machine with an ink-wax-carbon mixture to make carbon paper.

7-4 CHEMICAL PROCESSERS AND RELATED WORKERS

Workers in this minor group crush, grind, mix, blend, cook, roast, filter, separate, distil, refine and otherwise treat chemicals and other materials used in chemical and related processes. They are classified in the unit groups listed below:

7-41 Crushers, Grinders and Mixers.
7-42 Cookers, Roasters and Related Heat-Treaters.
7-43 Filter and Separator Operators.
7-44 Still and Reactor Operators.
7-45 Petroleum-Refining Workers.
7-49 Chemical Processers and Related Workers Not Elsewhere Classified.

7-41 Crushers, Grinders and Mixers

Workers in this unit group crush, grind, mix and blend chemicals and other materials used in chemical and related processes.

Their functions include:

operating crushing machines to reduce solid chemicals and related materials to suitable size for further processing:

operating mills to grind and pulverise solid chemicals and related materials;

operating machines in which solids or liquids used in chemical and related processes are mixed or blended;

performing related tasks.

Operators of crushing machines employed in ore-treating are classified in 7-12.30.

7-41.20 Crusher Operator (Chemical and Related Processes).

Operates crushing machine in which solid lumps of chemicals or other materials used in chemical and related processes are reduced to size suitable for milling or other further processing:

fills hopper of machine by hand or by operating mechanical feed; fixes screen to machine to retain oversize pieces; operates controls to start, stop and regulate speed of machine; breaks oversize or jammed lumps with hammer.

Operators of crushing machines employed in ore-treating are classified in 7-12.30.

7-41.30 Miller-Grinder (Chemical and Related Processes).

Operates mill to grind and pulverise solid chemicals or other materials used in chemical and related processes into particles of specified size:

selects screens, according to size of particles to be produced, and fits them to machine; starts machine and feeds, or supervises the feeding of, material into mill; observes grinding process, inspecting samples of ground material to ensure that particles of required size are obtained; supervises the removal of ground material.

May keep records of weight of material ground.

7-41.40 Mixing- and Blending-Machine Operator (Chemical and Related Processes).

Operates machine in which solids or liquids used in chemical and related processes are mixed or blended:

loads prescribed quantities of materials into machine container by hand or by operating valves, pumps or other mechanical loaders; starts machine agitators to mix materials; adds further ingredients to mixture as required; stops machine when mixing process is completed; removes mixtures from machine container by hand, or by operating valves or pumps; prepares machine for fresh run.

May be designated according to type of materials mixed, type of product obtained or type of machine operated.

7-41.90 Other Crushers, Grinders and Mixers.

This group includes crushers, grinders and mixers not elsewhere classified, for example those who operate fan-type grinding or beating machines in the treatment of asbestos fibres or operate special machines in which plastic resin is compounded or pelletised.

7-42 Cookers, Roasters and Related Heat-Treaters

Workers in this unit group perform cooking, roasting and other heat-treating tasks in chemical and related processes.

Their functions include:

cooking materials to purify, mix or compound them, give them a special property or effect a chemical change in them;

heating substances in ovens, kilns or similar devices to dry them, give them a special property or effect a chemical change in them;

operating driers for the processing of chemicals and related materials;

performing related tasks.

7-42.20 Cooker (Chemical and Related Processes).

Cooks materials such as bones, fats, molasses, oils, salts, acids and alkalis in open vats, boiling pans, kettles or similar containers to purify, mix or compound them, give them a special property or effect a chemical change in them:

loads required materials into vessel by hand or by operating mechanical loaders or pourers; controls heating device to ensure materials attain required temperature; adds further ingredients and stirs mixture as necessary to obtain required compound or chemical change; observes temperature, time and other measuring instruments and tests mixture to ascertain when process is completed; runs off product into storage tanks or other containers.

May be designated according to type of cooking vessel used or type of process.

7-42.30 Roaster, Chemical and Related Processes.

Operates oven, rotary-kiln or similar device and auxiliary equipment, such as conveyer, feeders, and dust collectors, to calcine or otherwise effect a chemical change in materials:

lights burners, starts equipment to feed materials and regulates controls of oven or kiln; observes colour and shape of flame, monitors gauges and regulates fuel feed to maintain specified temperatures; records data, such as temperature and fuel or power consumption; stops heating and unloads ovens in batch-type processes or operates continuous-feed kiln.

May be designated according to type of heating device operated or type of process.

7-42.40 Drier Operator (Chemical and Related Processes).

Operates driers that heat liquids or slurries to remove water or volatile liquid components:

shovels, dumps or pumps liquids or slurries into pans, trays or other containers for placing in oven chamber or room-type driers, or directly into batch-type drying installations; admits steam or hot air to drying chamber; observes thermometer and humidity gauges and moves controls to maintain temperature and air circulation in drier; shuts down drier at end of cycle and unloads driers.

May operate continuous-feed driers. May be designated according to type of heating device operated.

7-42.90 Other Cookers, Roasters and Related Heat-Treaters.

This group includes cookers, roasters and related heat treaters not elsewhere classified, for example those who dry chemical solutions by a spraying or atomising process to produce powders; dry materials in drying rooms or in drying cabinets fitted with conveying equipment; or operate electrothermal furnaces to graphitise carbon electrodes.

7-43 Filter and Separator Operators

Workers in this unit group operate devices to filter and separate chemicals and related materials.

Their functions include:

operating filtering devices in which solutions are forced under pressure through a filtering unit;

operating filtering devices in which solutions are vacuum-drawn through filtering media fitted to a rotating drum;

operating machines which separate substances by centrifugal force;

operating chemical, electrical or centrifugal equipment at oil well sites to remove sediment and water from crude oil;

performing related tasks.

7-43.20 Filter-Press Operator.

Operates filter press to remove sediment, impurities and insoluble materials from liquid concentrations:

opens filter press and covers filter plates with canvas, paper or other filtering media; closes press and ensures that its joints make a liquid-tight seal; mixes filtering compound with solution and agitates mixture to settle impurities; pumps mixture through filter press; removes impurities from filter by compressed air, water or steam and cleans or replaces filters as required.

May be designated according to type of materials filtered.

7-43.30 Rotary-Drum Filterer.

Operates rotary-drum filter into which solutions are vacuum-drawn to remove sediment, impurities and insoluble material:

operates valves to regulate flow of solution to filter tank and adjusts speed of rotation of drum; starts vacuum pump to draw solution through filter; observes discharge from filter and adjusts controls as necessary.

May make minor adjustments to filter and tend auxiliary equipment. May be designated according to type of solution filtered or solid separated.

7-43.40 Centrifugal Separator Operator.

Operates machine which separates solids from liquids, or liquids of different specific gravity from each other, by centrifugal force:

operates valves or pumps to load container of machine or loads manually; starts machine and adjusts container rotation speed to obtain efficient separation of substances; stops machine and extracts or runs off separated substances.

May fix and clean filtering media in machine. May operate machine fitted with heating attachment or continuous feed. May test samples for moisture content. May be designated according to type of materials separated.

7-43.50 Crude Oil Treater (Oilfield).

Operates chemical, electrical or centrifugal equipment at oil well site to remove sediment and water from crude oil:

tests oil for content of sediment and water, using a gravity-separation machine; pumps oil needing treatment to treating units; adds chemicals to chemical treating unit, or routes oil through electrical or centrifugal units, to break up oil and water emulsions, and drains off water; precipitates sediment in settling tanks; gauges tanks to determine quantity of oil treated and delivered to pipe lines; operates and maintains water and oil pumps of treating unit; cleans and makes repairs to units; records production, results of tests and other data.

May operate oil heaters to raise oil to desired temperature for treating. May pump wells.

7-43.90 Other Filter and Separator Operators.

This group includes filter and separator operators not elsewhere classified, for example those who operate other special filter and separator equipment to process specific kinds of chemical materials.

7-44 Still and Reactor Operators

Workers in this unit group distil and refine chemicals (except petroleum).

Their functions include:

operating batch or continuous stills in which crude liquid chemicals are treated to separate them into, or to refine, their chemical constituents;

operating equipment which performs a sequence of operations in a chemical reaction process;

operating evaporating tanks, vacuum pans or similar devices to concentrate solutions and suspensions;

operating digesters at wood-felling sites to obtain crude turpentine from wood chips by steam distillation;

performing related tasks.

7-44.20 Batch-Still Operator (Chemical Processes, except Petroleum).

Operates one or more stills in which batches of crude liquid chemicals (other than petroleum) are treated to separate them into, or to refine, their chemical constituents:

operates valves to fill tank with liquid to desired level; regulates pressure and rate of heating in tank; adjusts valves to control amount of condensed vapour returned to tank to enrich vapours expelled; takes samples of vapours for testing to determine to which container they should be routed.

May test vapour samples. May adjust condensers and pumps. May specialise in treating particular type of chemical and be designated accordingly.

7-44.30 Continuous-Still Operator (Chemical Processes, except Petroleum).

Operates one or more stills in which continuous feed of crude liquid chemical (other than petroleum) is separated into its chemical constituents or in which those constituents are refined:

regulates flow of liquid into still; adjusts controls to maintain required temperature at various levels of still and prescribed pressure in still; regulates valves to control amount of condensed vapour returned to still to enrich vapours expelled; takes samples of vapours for testing to determine to which containers they should be routed; maintains record of temperature, pressure and feed-indicator readings.

May test vapour samples. May adjust heat exchangers, absorbers, strippers, reboilers and compressors. May specialise in treating particular type of chemical and be designated accordingly.

7-44.40 Reactor-Converter Operator (Chemical Processes, except Petroleum).

Operates equipment (other than that used for treating petroleum) which performs a sequence of operations in a chemical reaction process:

regulates feed of gaseous, liquid or solid materials into equipment; checks progress of process, observing temperature readings and pressure gauges and other instruments and making simple chemical tests; adjusts material feed and heating, cooling or other controls as necessary.

Workers who operate equipment performing only one operation in a reactor-converter process are classified according to the type of equipment operated.

7-44.50 Evaporator Operator.

Operates evaporating tank, vacuum pan or similar device to concentrate solutions and suspensions by driving off excess water:

pumps liquid into tank or pan; operates vacuum pump and valve to admit steam into pan or regulates flow of steam into heater coils; makes chemical tests or uses instruments to ascertain strength of concentrate; adjusts temperature, pressure and other controls as necessary; pumps concentrated solution from evaporator for auxiliary heating.

May tend settling tanks and preheating tanks, condensers and cooling equipment. May treat solutions of particular chemicals and be designated accordingly.

7-44.60 Extractor Operator (Wood Distillation).

Operates digester at tree-felling site to obtain crude turpentine from wood chips by steam distillation:

seals opening at bottom of digester; fills digester with wood chips; seals and bolts charging hole; regulates valves to control passage of steam through digester and extraction of turpentine from wood; stops flow of steam after prescribed period; removes spent wood from digester at end of extraction process.

May operate still to refine crude wood turpentine or kettle still to distil resin into gum turpentine and rosin.

7-44.90 Other Still and Reactor Operators.

This group includes still and reactor operators not elsewhere classified, for example those who specialise in refining crude wood turpentine; distilling resin into gum turpentine; distilling alcoholic beverages from prepared mixtures; distilling vegetable products with the aid of steam to obtain perfumes and aromatic substances of an oily nature; or assisting in operation of stills.

7-45 Petroleum-Refining Workers

Workers in this unit group refine, distil and treat petroleum and petroleum products.

Their functions include:

operating plant to remove sulphur from petrol and petroleum products;

operating pumps to circulate petroleum products, water and chemical solutions through refinery;

operating stills to distil or refine petroleum products;

operating control panels in petroleum refinery;

operating equipment to blend petrol with chemicals and other additives;

operating filter presses to separate oil of paraffin distillate from paraffin wax;

performing related tasks.

7-45.20 Desulphurisation Treater (Petroleum Refining).

Operates plant in which petrol, paraffin, crude and distilled oils, wax and other petroleum products are treated to remove sulphur and other undesirable impurities:

observes and records readings of temperature, pressure and flow gauges and meters; directs or regulates controls to add chemicals to oil flowing into unit, to mix oils and chemicals in towers or tanks, to wash or treat oil with water or steam, and to separate oil and spent chemicals or water; makes tests to determine whether treatment is proceeding properly and draws samples for laboratory analysis.

May operate pumps to circulate oil through plant and regulate refrigerating equipment. May specialise in treating particular type of product, operating particular type of plant, or using particular chemical, and be designated accordingly.

7-45.30 Pumpman (Petroleum Refining).

Operates steam or electrically driven pumps to circulate crude, semi-processed and finished petroleum products, water and chemical solutions through processing, storage and shipping departments of refinery:

starts pumps, observes flow and pressure meters and adjusts pumping rates as necessary; turns handwheels to open or close tanks and pipeline valves; observes operation of pumping equipment to detect defects and leakages; maintains and repairs pumping equipment; ascertains levels in tanks with gauging tape.

May record operating data. May take samples and test them for specific gravity and colour.

7-45.40 Stillman (Petroleum Refining).

Operates one or more stills in which petroleum is distilled to separate it into, or to refine, products such as petrol, paraffin, lubricating oil and fuel oil:

observes and records readings of temperature, pressure and flow gauges and meters and adjusts valves or automatic controls as necessary; tests specific gravity of products and observes their colour to determine whether processing is proceeding properly; makes minor adjustments to equipment; supervises workers who assist in operation of still.

May fire oil- or gas-burning furnace to heat oil to processing temperature. May specialise in particular type of still, kind of oil processed, department or process and be designated accordingly.

7-45.50 Controlman (Petroleum Refining).

Operates control panel to regulate temperature, pressure, rate of flow and tank level in petroleum refining, processing and treating units and petrochemical units:

observes instruments and meters to verify that specified conditions are maintained and records readings; adjusts switches, valves, and levers on control panel to regulate flows, temperatures, pressures, vacuum, catalyst and other processing conditions; reports defective equipment to *Stillman (7-45.40)*.

May test products for chemical characteristics and colour, or send samples to laboratory for analysis. May specialise in particular type of unit or process and be designated accordingly.

7-45.60 Blender (Petroleum Refining).

Operates equipment to blend petrol with chemicals and other additives to produce commercial fuel:

examines blending schedules specifying components and quantities to be blended; opens valves and starts pumps, or notifies *Pumpman (7-45.30)* to transfer petrol to blending tanks; computes required amounts of additives or sets weighing machine that automatically weighs quantities of additives in ratio to quantity of petrol; opens valves and spray jets to admit and circulate specified quantities of petrol, additives and chemicals in mixing tanks; controls pumps, agitators, and mixers to blend mixtures mechanically or with air agitation; observes temperature gauges and regulates temperatures in tanks; draws sample of mixture for laboratory analysis; repeats blending process as required by laboratory, or starts pumps to draw off blended gasoline to storage tanks or leading racks;

opens valves to draw off chemical and lead residue; records quantity blended and materials used; maintains and repairs pumps, agitators and mixers.

May test products. May operate control panel, utilising electronic computers and controls, to blend products in pipelines (in-line blending). May be designated according to type of additive used.

7-45.70 Paraffin Plant Operator.

Operates filter presses to separate oil of paraffin distillate from paraffin wax:

installs filter plates and adjusts hydraulic ram pressure; regulates flow of chilled distillate into filter plates; starts hydraulic rams to squeeze oil from distillate as wax solidifies; observes oil pressed from filter plates and adjusts ram pressure to extract maximum amount of oil from wax; scrapes accumulated wax from filter plates into spiral conveyor that carries it to melting pan; regulates flow of steam into melting pan to heat wax; starts pump to return salvaged distillate from tank to filter press for reprocessing.

May perform part of above tasks and be designated according to phase of processing.

7-45.90 Other Petroleum-Refining Workers.

This group includes petroleum-refining workers not elsewhere classified, for example those who specialise in blending asphalt for various uses with naphtha, kerosene and other petroleum products; operating equipment to produce lubricating oils; or operating equipment to produce liquefied gas.

7-49 Chemical Processers and Related Workers Not Elsewhere Classified

Workers in this unit group perform tasks in chemical and related processing not classified elsewhere.

Their functions include:

treating chemical solutions with bleaching reagents;

operating ovens and furnaces to make coke or coal-gas;

operating kilns to make charcoal;

operating equipment to make synthetic fibres;

operating chemical equipment to separate and extract radioactive materials from their ores;

performing other tasks in chemical and related processing.

7-49.15 Chemical Bleacher Operator.

Treats chemical solutions with bleaching reagent to improve their colour:

pumps liquids to be bleached into tank; adds bleaching ingredients and starts agitator; adjusts controls to maintain specified temperature; takes samples for laboratory analysis; pumps product to storage tank or for further processing; makes minor repairs to equipment.

7-49.20 Coke Burner.

Operates special ovens to produce coke from coal:

directs charging, sealing of doors and firing of coke-oven; watches colour of flame and adjusts supply of air to oven to control coal burning; determines when coke is ready for removal by observing colour and length of flame; quenches coke to break it into fragments; directs removal of coke from oven.

7-49.25 Coal-Gas Maker.

Operates one or more retorts in the production of gas from coal:

loads retort with coal by hand or mechanically; kindles fire and sets and starts forced draught system; directs jet of steam periodically into heated coal; observes gauges and colour of fuel being consumed to determine whether process is proceeding correctly; withdraws spent coal from retort.

May be designated according to type of gas produced or type of retort operated.

7-49.30 Charcoal Burner.

Operates kiln to convert wood into charcoal by slow burning process:

loads kiln with wood; places kindling in kiln and starts fire; seals top of kiln when desired heat is reached; observes colour of smoke coming from kiln and regulates formation of charcoal by opening and closing draught holes; seals draught holes to smother fire when process is completed.

7-49.35 Synthetic Fibre Maker.

Tends machine or machine section that extrudes or forms natural or synthetic polymers into synthetic fibres such as rayon or nylon:

grasps filaments as they are extruded through spinneret; brings rayon ends together to form single strand and guides it into solidifying bath; threads strand through guides and over glass wheels which carry it through machine for further processing or winding; ties strands together if breaks occur; threads strands through washing, bleaching and drying sections of machine; attaches strands to take-up bobbins and doffs bobbin when full or when breaks and tangles occur.

7-49.40 Chemical Processer (Radioactive Materials).

Controls chemical equipment to separate and extract uranium, plutonium and other radioactive materials from their ores, to concentrate radioactive materials and extract them from solution, and to recover unconsumed uranium from spent nuclear fuels:

turns on power from consoles, and directs workers to start vacuum pumps, amplifier power, distillation towers and other equipment; observes panel lights, dials, numerical counters, oscilloscopes and continuous graphs and adjusts controls until operating variables meet specifications; directs activities of other workers to co-ordinate and synchronise the various phases of the operation; computes flow rates and proportions of chemicals to be added to solutions and adjusts controls to regulate concentrations, temperatures of solutions and flow of fluids and gases through processing and recovery systems; records operating data on log sheet; operates variety of chemical equipment to decontaminate, neutralise and dispose of radioactive waste.

May operate remote-controlled equipment to perform chemical and metallurgical tests on radioactive materials.

7-49.90 Other Chemical Processers and Related Workers.

This group includes chemical processers and related workers not elsewhere classified, for example those who tend electrolytic cells used in the production of chemicals; wash chemicals in the processing of chemical products; coat pills and tablets to make them palatable and to preserve their ingredients; oxidise lead to form red lead; treat lead with acid or heat to form white lead; prepare starches and glucose; treat rubber latex with chemicals to coagulate it; and treat latex with smoke.

7-5 SPINNERS, WEAVERS, KNITTERS, DYERS AND RELATED WORKERS

Workers in this minor group prepare natural textile fibres for spinning and winding; spin, double, twist and wind thread and yarn; set and maintain weaving and knitting machines and prepare pattern cards; weave materials on hand or machine looms; knit garments, fabrics and other articles by hand or machine; bleach, dye and otherwise treat textile products; and perform related textile fabrics manufacturing tasks. They are classified in the unit groups listed below:

7-51 Fibre Preparers.
7-52 Spinners and Winders.
7-53 Weaving- and Knitting-Machine Setters and Pattern-Card Preparers.
7-54 Weavers and Related Workers.
7-55 Knitters.
7-56 Bleachers, Dyers and Textile Product Finishers.
7-59 Spinners, Weavers, Knitters, Dyers and Related Workers Not Elsewhere Classified.

7-51 Fibre Preparers

Workers in this unit group prepare wool, cotton, flax, jute, hemp and other natural textile fibres for spinning and winding.

Their functions include:

grading and classifying natural textile fibres;
washing wool fibres;
tending machines which mix textile fibres into uniform blends;
operating machines which clean and fluff textile fibres, transform them into sliver, comb them into sliver for first drawing, combine slivers into sliver lap or sliver laps into ribbon lap, combine several slivers into one attenuated strand of regular quality and weight, or transform sliver into roving;
performing related fibre-preparing tasks.

7-51.15 Fibre Grader and Classer.

Grades and classifies natural textile fibres:

examines texture, colour and length of wool, cotton, flax, hemp and other natural textile fibres and grades them according to type and quality.

7-51.20 Wool Scourer.

Washes greasy wool (raw wool fibres) preparatory to further processing:

adds specified quantities of soap, soda and other scouring agents to water in cleaning bowls of machine; starts machine and feeds greasy raw wool into series of cleaning and rinsing bowls; cleans machine.

May supervise drying of cleaned wool. May also perform duties of *Wool carboniser (7-56.45).*

7-51.25 Fibre Mixer and Blender.

Tends machines which mix textile fibres into uniform blends:

feeds machines with various types of fibre, according to blending instructions; regulates spray of oil lubricant onto fibre according to types of fibre blended; starts machines and observes proper flow of fibres through mixing-picker machines; stops machines when rollers become clogged and unclogs them by hand; cleans machines using air hose.

May mix oil lubricant.

7-51.30 Fibre Picker.

Operates picker machines which clean and fluff textile fibres:

feeds fibres into machines from which they emerge arranged in loosely matted sheets or laps; removes rolls of lap; cleans and oils machines.

7-51.35 Fibre Carder.

Operates carding machine which cleans fibres and transforms them from loosely matted layers (lap) into untwisted strand (sliver):

feeds lap through rollers of machine; mats ends of new roll of lap on to end of exhausted one by hand; starts machine and observes operation; removes cans when filled with sliver and inserts empty ones; cleans and oils machine.

7-51.40 Fibre Lapper.

Operates machine which combines slivers into one sliver lap, or sliver laps into one ribbon lap, preparatory to combing:

passes ends of slivers or sliver laps through machine guides; starts machines and maintains supply of sliver or sliver lap; pinches together broken ends of slivers; removes completed rolls of lap; cleans and oils machine.

7-51.45 Fibre Comber.

Operates machine which combs out short fibres, removes dirt and delivers long fibres in a sliver for first drawing (twisting):

passes ribbon laps through machine guides; starts machine and maintains supply of lap; pinches together ends of full and exhausted rolls, or broken ends of lap; removes cans when filled with sliver and inserts empty ones; cleans and oils machine.

7-51.50 Fibre Drawer.

Operates drawing frame machine which combines several strands of sliver into one attenuated strand of regular quality and weight:

passes sliver through machine guides; starts machine and maintains supply of sliver; twists broken ends together by hand; removes cans when filled with sliver and inserts empty ones; cleans and oils machine.

7-51.55 Fibre Rover.

Operates roving frame machine which transforms sliver into roving:

passes sliver through machine guides; starts machine and maintains supply of sliver; twists broken ends together by hand; removes full bobbins of twisted roving from machine spindles; cleans and oils machine.

7-51.90 Other Fibre Preparers.

This group includes textile fibre preparers not elsewhere classified, for example those who operate machines for softening and beating flax, jute and hemp fibres or for washing raw stock fibres (other than wool).

7-52 Spinners and Winders

Workers in this unit group spin, double, twist and wind thread and yarn from natural textile fibres.

Their functions include:

operating machines to spin thread and yarn from roving, wind two or more threads onto a bobbin, twist two or more strands of yarn or thread into a single heavier and stronger strand, or wind yarn or thread from one package to another;

performing related tasks.

7-52.20 Spinner, Thread and Yarn.

Operates machines to spin thread and yarn from roving:

loads spinning machine with bobbins of roving; starts machine, observes operation to detect broken strands of roving or yarn and repairs them by hand; replaces exhausted bobbins without stopping machine; cleans and oils machine.

7-52.30 Doubler.

Operates machine which winds two or more threads onto a bobbin without twisting them:

inserts spindles on core of each spool; draws ends of threads through guide simultaneously and winds them together on bobbin; starts machine, observes operation, mends breaks in threads by knotting, removes full bobbins and inserts empty ones; cleans and oils machine.

7-52.40 Twister.

Operates machine which twists two or more strands of yarn or thread into a single heavier and stronger strand:

places tubes of yarn or thread on rack; pulls ends of yarn or thread together through machine and fastens them to bobbins; starts machine, observes operation, mends broken threads by hand, replaces tubes when empty and bobbins when full; cleans and oils machine.

7-52.50 Winder.

Operates machine which winds yarn or thread from one package to another to facilitate further processing or transportation:

places cones, reels, bobbins, tubes or other packages on spindles of machine; pulls ends of yarn or thread through machine guides and attaches them to receiving packages; starts machine, observes operation, mends broken strands by hand, removes full packages and inserts empty ones; cleans and oils machine.

7-52.90 Other Spinners and Winders.

This group includes spinners and winders not elsewhere classified, for example those who perform auxiliary operations in spinning and winding.

7-53 Weaving- and Knitting-Machine Setters and Pattern-Card Preparers

Workers in this unit group set and maintain weaving and knitting machines and prepare pattern cards for use on Jacquard looms.

Their functions include:

setting, maintaining and repairing various kinds of looms or knitting machines;

reproducing designers' sketches in diagram form for guidance of Jacquard card cutters and weavers;

operating machines which punch holes in Jacquard cards;

performing related tasks.

7-53.20 Loom Fixer.

Sets, inspects and repairs looms of various kinds:

prepares looms for weaving new pattern or different quality of product, for example by setting harness, reed and dropwires into position and tying warp ends onto cloth beam; inspects looms periodically and keeps them in good working order; makes repairs such as putting in new harness straps and replacing worn-out shuttles; replaces empty warp beams with full ones.

May place chain of pattern cards in position on Jacquard loom. May be designated according to type of loom serviced.

7-53.30 Knitting-Machine Setter.

Sets, adjusts and makes minor repairs to various types of knitting machines:

sets machines according to design, shape and size of desired products; examines finished products to determine whether machines need further adjustment or repair; adjusts machines as required and repairs or replaces damaged or worn parts.

May set metal chains that control operation of Jacquard knitting machines.

7-53.40 Jacquard Design Copyist.

Reproduces in diagram form designers' sketches for weaving by Jacquard loom:

sets out textile designer's sketches in diagram form on squared paper, indicating where warp is to be raised over weft, for guidance of *Jacquard card cutter (7-53.50)* and *Jacquard weaver (7-54.45)*; makes copies of previously prepared diagrams.

7-53.50 Jacquard Card Cutter.

Operates machine which punches holes in Jacquard cards:

places plain cards in cutting machine equipped with keyboard; depresses keys to punch holes in card according to pattern indicated on diagrams prepared by *Jacquard design copyist (7-53.40)*.

7-53.90 Other Weaving- and Knitting-Machine Setters and Pattern-Card Preparers.

This group includes weaving- and knitting-machine setters and pattern-card preparers not elsewhere classified, for example those who check and correct punched holes in pattern cards; operate machines which produce working copies of pattern cards from master set; place pattern cards together in proper sequence by hand or machine.

7-54 Weavers and Related Workers

Workers in this unit group weave materials on hand or machine looms and perform related tasks.

Their functions include:

operating machines which wind yarn or thread onto weaver's beams;

drawing warp threads into loom by hand or machine;

weaving plain or figured cloth, tapestry, lace, carpet or other fabrics on hand or machine looms;

examining and repairing fabrics;

performing related tasks.

7-54.15 Beam Warper.

Operates machine which winds yarn or thread from bobbins directly onto weaver's beam, or onto cylinder or reel and then onto beam:

gathers ends of yarn or thread from bobbins and guides them through reed or comb in order required for width and design of fabric to be woven; fastens ends to beam, cylinder or reel; starts machine and observes operation to ensure even tension of threads; repairs broken threads by hand; stops machine and cuts threads when winding onto beam is completed.

7-54.20 Loom Threader (Hand).

Draws warp thread or yarn into loom by hand, in preparation for weaving of fabric:

pulls each thread or end of yarn on weaver's beam through separate eye of heddle by means of a hook; draws all ends, either singly or several at a time, through spaces between reed wires; knots ends in bunches ready for weaving; uses, if not assisted by another worker, a reaching machine which selects threads from beam in rotation and places them in position for drawing through eyes of heddle.

7-54.25 Loom Threader (Machine).

Operates machine which draws warp threads into loom in preparation for weaving:

lays warp in sheet on machine; operates machine to pick out threads and draw them through heddle, reed and drop wires.

7-54.30 Cloth Weaver (Hand).

Weaves fabric on hand-operated loom:

opens warp by depressing foot treadles; throws weft shuttle across warp by hand or propels it by jerking a wooden handle; presses cross-thread (weft) into place with reed; mends broken threads by hand.

May also prepare own loom (warping and drawing-in) and use hand-operated Jacquard figuring mechanism.

7-54.35 Tapestry Maker (Hand).

Makes tapestry on hand-operated loom:

passes weft by hand alternately over and under warps and then, in reverse direction, passes weft under where before it was over and vice versa to create or reproduce designs of various colours; presses weft tightly together with comb or with point of bobbin to cover warps completely.

May prepare own loom (warping and drawing-in) and undertake repair work.

7-54.40 Cloth Weaver (Machine, except Jacquard Loom).

Operates battery of looms to weave cloth:

starts looms, observes operation, mends broken threads by hand and removes faulty pieces; keeps weft shuttles supplied with yarn; reports mechanical faults to *Loom fixer (7-53.20)*.

7-54.45 Jacquard Weaver.

Operates Jacquard loom to weave cloth of intricate designs:

starts loom, sees that weaving is proceeding correctly, mends broken threads by hand and removes faulty pieces; keeps weft shuttles supplied with yarn; observes faults arising from broken pattern cards and reports them to *Loom fixer (7-53.20)*.

7-54.50 Lace Weaver (Machine).

Operates lace-making machine:

starts machine, sees that weaving is proceeding correctly; mends broken threads by hand and removes faulty pieces; keeps machines supplied with yarn; reports mechanical faults to *Loom fixer (7-53.20)*.

May pass threads through machine guides in preparation for weaving and make minor adjustments.

7-54.55 Carpet Weaver (Hand).

Weaves carpet on hand-operated loom:

stretches cotton or jute foundation backing over frame; weaves yarn of various colours through backing according to design; uses hand shuttle and presses weft into position with hand beater (prong); keeps weft shuttles supplied with yarn; mends broken threads by hand.

7-54.60 Carpet Weaver (Machine).

Operates loom on which carpets or rugs are woven:

furnishes loom with spools, bobbins, or other packages in arrangement required by design; starts loom, sees that weaving is proceeding correctly, mends broken threads by hand and removes or marks faulty pieces; keeps shuttles or needles supplied with weft; reports mechanical faults to *Loom fixer (7-53.20)*.

May set up loom and see that pattern cards are in position for pattern work.

7-54.65 Net Maker (Machine).

Tends loom on which yarn or twist is intersected and knotted at regular intervals to form mesh:

starts machine, sees that weaving is proceeding correctly, mends broken threads by hand and removes faulty pieces; replaces empty bobbins with full ones; joins yarn from bobbins onto yarn ends of completed run of net still threaded in loom; reports mechanical faults to *Loom fixer (7-53.20)*.

May fill spare shuttles with yarn on winding attachment near loom.

7-54.70 Fabrics Examiner.

Examines textile fabrics for faults:

watches for faults in weave or pattern and marks them; reports faults to supervisor or instructs weavers, repairers or other workers as to remedial action to be taken.

May weigh rolls of fabric to see whether they correspond to amount of yarn issued to weavers. May count threads, using magnifying glass, to check closeness of weave. May inspect fabrics for qualities and characteristics such as shade of colour, finish and dimensions. May do repairs.

7-54.75 Fabrics Repairer.

Repairs faults in textile fabrics:

inspects fabrics for markings that indicate faults; plucks out knots with hand tool; uses needle and thread to replace broken or imperfect threads in such a way as to make repair invisible; gathers up slack on loosely woven threads.

May examine fabrics.

Workers employed mainly in repairing fabrics by sewing are classified in unit group 7-95.

7-54.90 Other Weavers and Related Workers.

This group includes weavers and related workers not elsewhere classified, for example those who perform auxiliary operations in weaving processes.

7-55 Knitters

Workers in this unit group knit garments, fabrics and other articles by hand or machine.

Their functions include:

operating one or more standard or specialised power-driven knitting machines to knit garments, fabrics, hosiery or other articles;

knitting garments and other articles on hand-operated machines or by hand;

performing related tasks.

7-55.20 Knitting-Machine Operator (Garment).

Operates one or more standard or specialised power-driven machines which knit garments, fabrics and other articles from yarn:

places bobbins of yarn of required colour on frame of machine; passes end of yarn through machine guides into knitting needle or yarn carrier, or ties it to end of yarn in machine; starts machine and sees that knitting is proceeding correctly; adjusts tension of springs so that knit will not be too tight or too loose; inspects knitted material for flaws and determines causes of defects; mends broken threads by hand; separates knitted material or garment from machine with scissors; reports mechanical faults to *Knitting-machine setter (7-53.30)*.

May set needles of machine for width and pattern of cloth and replace broken needles.

7-55.30 Knitting-Machine Operator (Hosiery).

Operates knitting machines to knit hosiery to shape of foot and leg:

places yarn spools on spindles and threads machine; places welt rod in retaining notch of welt bar, sets machine and yarn carrier to knitting positions and starts machine; hooks draw-off straps from take-up roller to welt rod to hold welt and leg taut during knitting; positions machine device to knit stitches joining welt to leg and sets dials to control narrowing heads that shape leg, heel and toe; clips loose threads at welt and toe of completed stocking with scissors; removes welt rods and stocking from machine; counts, bundles and labels hose; replaces and aligns needles and points with pliers.

May clean and oil machine.

7-55.40 Knitter (Hand-Operated Machine).

Knits fabrics, garments and other articles from yarn on hand-operated machine:

places cone of yarn on spindle and passes end of yarn through guides into knitting needles or yarn carrier; arranges needles to operate in sequences required by pattern; moves lever to separate needle plates of machine; sets comb between needle plates or hangs stitches of strip of knitted material on needles of machine; moves carriage of machine back and forth by hand to knit fabric or garment.

7-55.50 Hand Knitter.

Knits garments and other articles by hand from yarn according to specifications:

selects needles of size required by specifications and yarns of specified type and colour; knits sweaters, dresses, socks and other articles by hand.

May finish articles by sewing parts together and pressing.

7-55.90 Other Knitters.

This group includes knitters not elsewhere classified, for example those performing auxiliary operations in knitting processes.

7-56 Bleachers, Dyers and Textile Product Finishers

Workers in this unit group bleach, dye and otherwise treat fibres, yarn, cloth and other textile products.

Their functions include:

treating textile products to make them lighter in colour or to give them specific colour;

washing textile products to remove impurities, excess chemicals or natural gum;

tending equipment to shrink textile materials or strengthen the weave by interlocking the fibres;

waterproofing textiles with chemicals;

treating silk to give it body and weight;

operating machines which press, stretch, or impart lustre, waterproof or other type of finish to textiles;

performing related tasks.

7-56.15 Textile Bleacher.

Treats fibres, yarn, cloth or other textile goods to make them lighter in colour:

fills container with water and adds chemicals; immerses material in solution; controls temperature of solution, movement of material through it and period of immersion; drains off solution and rinses material; and passes it on for drying or further treatment.

May bleach by means of light and air and specialise in type of material treated.

7-56.20 Yarn Dyer.

Treats yarn with dyes to give it required colour:

fills container with water and adds dyes; controls temperature of solution; puts yarn in or on a holding device and immerses it in solution; agitates yarn or solution; withdraws sample of yarn after prescribed period for colour testing; stops, continues or adjusts treatment according to result of test; withdraws yarn and passes it on for rinsing and drying; drains and cleans container.

May do rinsing and drying.

7-56.25 Fabric Dyer.

Treats textile fabric with dyes to give it required colour:

fills container with water and adds dyes; controls temperature of solution; sews ends of fabric together, if necessary; puts fabric in or on a holding device and immerses it in solution; agitates fabric or solution; cuts off sample of fabric after prescribed period for colour testing; stops, continues or adjusts treatment according to result of test; withdraws fabric and passes it on for rinsing and drying; drains and cleans container.

May do rinsing and drying.

7-56.30 Garment Dyer.

Re-dyes garments to give them colour desired by customers:

fills container with water and adds dyes; controls temperature of solution; immerses garment in solution and agitates it by hand or mechanically; inspects garment after prescribed period for colour; stops, continues or adjusts treatment according to result of inspection; removes garment when properly dyed and passes it on for rinsing and drying; drains and cleans container.

May do rinsing and drying.

7-56.35 Textile Washer.

Treats yarn, cloth or finished goods to remove impurities or excess chemicals:

fills container with water; warms water to required temperature; adds soap or other cleansing agent; immerses material in, or feeds it through, container; controls temperature of solution and period of immersion or speed of feeding; passes material on for rinsing and drying or other treatment; drains and cleans container.

May do rinsing and drying.

7-56.40 Silk Degummer.

Treats silk yarn, cloth or piece goods to remove natural gum:

fills container with water; heats water to required temperature; adds soap or other cleansing agent; controls temperature of solution; places skeins of yarn in boiling solution or on revolving arms of container; attaches cloth or piece goods to suspended rods, canes or metal frames and moves these through solution; rinses material in hot water; drains and cleans container.

May do drying.

7-56.45 Wool Carboniser.

Controls equipment that treats scoured wool fibres, woollen fabric and rags to carbonise and remove cellulosic (vegetable) matter:

turns valves to admit water and acid to carbonising troughs and sets temperature controls in charring unit; starts conveyor which feeds fibre, fabric or rags into bath containing weak solution of acid; adjusts speed of material through wringers, charring unit, crushers and shakers, neutralising bath and final dryer; tests acid solution and adds water or acid to maintain uniform strength of carbonising agent.

May tend gas chamber that carbonises cellulose content of rags to reclaim wool fibres.

Wool scourer is classified in 7-51.20.

7-56.50 Textile Shrinker.

Tends equipment to shrink woven material to required length and width:

fills tank with water; heats water to required temperature and adds shrinking agent; feeds lengths of material through rollers and sews ends of material together; controls temperature of solution; passes material through solution and rollers until the desired shrinkage is obtained; cleans equipment.

May use special equipment to cause fibres of material to felt or interlock, or to pummel, press and steam-heat the material. May do rinsing and drying.

7-56.55 Textile Fuller.

Tends equipment to cause fibres of wool to interlock and strengthen the cloth for further processing:

fills tank with water and heats it to required temperature; adds soap to water; feeds lengths of material through rollers and sews ends together; controls temperature of solution; passes material through solution and rollers until desired effect is obtained; cleans equipment.

May use special equipment to hammer material. May do rinsing and drying.

7-56.60 Textile Waterproofer.

Treats textiles with chemical to make them water-resistant:

fills container with chemical solution; controls temperature of solution; feeds lengths of material into rollers and joins ends together; passes material through rollers into solution until it is impregnated; watches for and removes folds and creases; cleans equipment.

May combine a dyeing process with the waterproofing and may also dry the material.

Workers who waterproof textiles with rubber or oil are classified in unit groups 9-01 and 9-49 respectively.

7-56.65 Silk Weighter.

Treats silk with solutions of tin and phosphates to give it weight and body:

wraps silk in blanket or coarse canvas; places it in container of centrifugal machine; pumps solution of tin from mixing vat into machine which is run for a period with material immersed in solution; draws off solution; transfers material to spray-washing machine; returns material to centrifugal machine containing phosphates and runs it to fix tin to silk; repeats process, as necessary, to obtain desired weight.

7-56.70 Textile Calender Operator.

Operates machine in which textiles are pressed, stretched or given lustre or waterproof or other type of finish by means of friction, heating and rolling:

places roll of material on machine feeder; threads end of roll through machine rollers and affixes it to winder; operates controls to bring rollers together and so press on cloth; starts machine and admits steam to rollers; observes material passing through rollers and regulates tension on material as required; removes calendered roll of textile from winder.

7-56.90 Other Bleachers, Dyers and Textile Product Finishers.

This group includes bleachers, dyers and textile product finishers not elsewhere classified, for example those who dye unspun fibres, hosiery or knitwear; disentangle skeins of yarn after washing, bleaching, dyeing or other treatment; dry materials at any stage of treatment; remove fibre protrusions; stretch textile goods; press made-up goods; re-waterproof used goods; or size the warp.

7-59 Spinners, Weavers, Knitters, Dyers and Related Workers Not Elsewhere Classified

Workers in this unit group perform textile fabrics manufacturing tasks not classified elsewhere.

Their functions include:

making braid by hand or machine;
crocheting by hand or machine;
making nets by hand;
mixing and purifying fur fibres by machine;
operating machines which make hat forms from fur fibres or wool batts;
performing related tasks.

7-59.20 Braid Maker (Hand).

Makes braid by hand:

interlaces and entwines strands of wool, silk, linen or thread to make ribbon-like or cord-like fabrics for binding or for ornamental purposes.

7-59.25 Braid Maker (Machine).

Operates one or more machines that interweave threads into tubular cord or narrow band:

passes thread through machine guides; starts machine and sees that braiding is proceeding correctly; maintains supply of thread and mends breakages by hand.

7-59.30 Crocheter (Hand).

Makes trimmings, articles and decorative fabrics with thread or yarn by means of a hooked needle (crochet hook):

selects needle and thread or yarn; makes loops and knots them to form a pattern according to own or prepared design.

May crochet trimmings and decorative pieces directly onto edges of garments and other articles. May specialise in lacemaking.

7-59.35 Crocheter (Machine).

Operates machine which crochets trimmings on knitted garments and other knitted goods:

places bobbins of selected threads on machine; passes ends of thread through machine guides and eye of machine needle; adjusts machine for thread tension and type of stitch; arranges material in position for crocheting and guides it under needle; replaces empty bobbins and broken needles.

7-59.40 Net Maker (Hand).

Makes nets by hand:

plaits and knots twine using netting needle or shuttle.

May attach fittings and specialise in safety, rescue, fishing or sports nets.

7-59.45 Fur Fibre Mixer (Machine).

Operates machine that mixes and purifies fur fibres by blowing air onto them:

tips fur fibres into hopper of machine; starts machine and sees that operation is proceeding correctly; examines fur fibres emerging from machine and determines from their feel and appearance whether or not to pass them through machine again; cleans machine after each run.

7-59.50 Felt Hood Former.

Operates machine which makes hat forms from fur fibres or wool batts:

if making hat forms from fur fibres, starts machine to blow fur fibres onto perforated revolving metal cone to which they adhere by suction; when cone is sufficiently covered with fur fibres stops machine, places another cone over hat form, lifts cones from machine, immerses them in hot water and removes hat form after prescribed period; if making hat forms from wool batts, guides batts over revolving egg-shaped roller to form pairs of hat bodies which he then cuts into two.

7-59.90 Other Spinners, Weavers, Knitters, Dyers and Related Workers.

This group includes spinners, weavers, knitters, dyers and related workers not elsewhere classified, for example those who harden and shrink hat forms or make wool felt sheeting.

7-6 TANNERS, FELLMONGERS AND PELT DRESSERS

Workers in this minor group prepare hides, skins and fur- or wool-bearing pelts for making leather and fur products. They are classified in the unit groups listed below:

7-61 Tanners and Fellmongers.
7-62 Pelt Dressers.

7-61 Tanners and Fellmongers

Workers in this unit group make leather from hides and skins.

Their functions include:

sorting and grading hides and skins;
removing residual wool from sheepskins;
removing flesh and hair from hides by hand or machine;
operating machine to split hides edgeways;
treating hides to convert them into leather;
dressing and applying dyes and stains to leather;
performing related tasks.

7-61.20 Hide and Skin Grader.

Sorts and grades hides and skins before or after processing:

inspects hides and skins for scars, brand or tick marks, warble-fly holes and other imperfections; sorts hides and skins according to size, weight, thickness, colour and quality; selects those suitable for processing; examines and grades processed hides and skins, returning them for further processing where necessary.

Pelt grader is classified in 7-62.20.

7-61.25 Fellmonger.

Separates residual wool from sheepskins and preserves skins intended for further treatment:

washes sheepskins in cold water by hand or machine; paints surface of skin with depilatory to facilitate removal of wool; places skin on board or over knees and removes wool by hand; dries wool in drying room or by machine; grades skins according to size and quality; pickles skins in solution to preserve them until required for further treatment.

May sort wool according to length and quality.

7-61.30 Hide Flesher and Dehairer (Hand).

Removes flesh and traces of hair from hides with hand knife:

stretches wet hide over iron or wooden beam; scrapes flesh and hair off hide with circular or two-handled knife; piles scraped hides.

7-61.35 Hide Flesher and Dehairer (Machine).

Operates machine in which flesh and hair are removed from hides:

starts machine to rotate machine rollers; lays hide over lower roller and smooths out wrinkles; presses treadle to bring roller carrying hide against rotating roller equipped with special knife blades; feeds half of hide through rollers; reverses hide and repeats operation to scrape other half of hide; piles scraped hides.

May operate machine in which a rotating, bladed roller is moved over hides placed on machine table or on frame.

7-61.40 Hide Splitter.

Operates a machine in which hides are split edgeways to form two or more pieces or to give uniform thickness:

starts machine and adjusts thickness of cut; places hide on machine table and smooths out wrinkles;

guides hide between rollers which force edge of hide against machine knife; removes split hides from machine.

7-61.45 Tanner.

Treats hides or skins in solutions to convert them into leather:

fills container with tanning solution and weighed quantity of hides; starts machine to agitate solution; stops machine after specified time or when process is judged complete; takes sample piece of leather and boils it in water to test completeness of tanning; continues tanning process if necessary; removes hides when tanning is completed.

May retan hides to restore colour lost in bleaching, splitting or other processes. May specialise in particular type of tanning and be designated accordingly. May prepare hides for tanning. May prepare tanning solutions.

7-61.50 Leather Currier.

Dresses and finishes hides after tanning:

scrapes hide with tool to expel moisture and scum left from tanning; applies grease, oil, soap or other compounds to hide by hand or machine; softens hide by stroking it with knife blade, flexing it over rigid blade or by rolling it under pressure in machine; rubs hair side of hide against itself to bring out grain; removes rough spots and blemishes by hand or machine scraping; polishes hide by hand or machine.

May also dye and stain leather.

7-61.55 Leather Dyer and Stainer.

Prepares colour solutions, dyes and stains and applies them to dressed leather:

weighs prescribed quantities of dyes and mixes them with water in container; heats solution for required time and tests it with hydrometer and chemical indicators; loads drum with hides, water and dyeing solution; starts mechanism to agitate solution; examines test piece of hide and adds bleach or further colouring if necessary.

7-61.90 Other Tanners and Fellmongers.

This group includes tanners and fellmongers not elsewhere classified, for example those who operate an automatic machine for buffing or polishing leather; wash hides; rub dyes or stain on leather with brushes or pads; or nail leather on boards or frames.

7-62 Pelt Dressers

Workers in this unit group prepare fur- or wool-bearing pelts for making garments and other products.

Their functions include:

sorting pelts before or after dressing;
removing flesh and fat from pelts before curing;
removing long, coarse hair from fur pelts and trimming underlying hair to even length;
applying dyes to fur pelts by hand;
stretching and smoothing dressed pelts;
performing related tasks.

7-62.20 Pelt Grader.

Sorts fur- or wool-bearing pelts before or after they have been dressed:

compares untreated pelts visually and sorts them according to species, quality, size, colour and markings; or sorts pelts after they have been dressed, dyed or otherwise treated.

Workers occupied in grading and matching furs in connection with fur tailoring are classified in 7-92.40.

7-62.30 Pelt Flesher.

Removes particles of flesh and fat from fur- or wool-bearing pelts prior to curing or other processing:

scrapes particles from pelt with knife or by working skin backwards and forwards over fixed steel blade.

May remove particles by use of power-operated revolving knife. May reduce thickness of hides by paring with machine or hand knife.

7-62.40 Pelt Plucker and Trimmer.

Removes long coarse hair from fur pelts and trims underlying hair to even length:

tacks skin, fur side up, over beam; removes loose hairs and flattens fur by stroking it with double-handled, blunt-edged knife; evens length of fur over entire skin with thin, sharp knife, scissors or shears.

7-62.50 Pelt Dyer (Hand).

Applies dyes to fur pelts by hand:

applies dyes to pelt with feather or brush to improve appearance of fur or to simulate pelt of another fur-bearing animal.

May spray dyes on fur. May mix own dyes. May be designated according to type of dyeing performed.

7-62.60 Pelt Stretcher.

Stretches, or smooths and stretches, the skins of dressed pelts:

pulls softened and greased pelts over fixed blade by hand to enlarge area and smooth texture of skin; stretches pelt by hand or by feeding it through a power-operated machine.

May also finish pelt by fluffing, beating, brushing and combing the fur.

Fur nailer is classified in 7-92.60.

7-62.90 Other Pelt Dressers.

This group includes pelt dressers not elsewhere classified, for example those who operate machines which remove fur from pelts for fur-felt making; or immerse pelts or skins in pickling, dyeing or other solutions.

7-7 FOOD AND BEVERAGE PROCESSERS

Workers in this minor group prepare food products and beverages of all kinds for human and animal consumption. They are classified in the unit groups listed below:

7-71 Grain Millers and Related Workers.
7-72 Sugar Processers and Refiners.
7-73 Butchers and Meat Preparers.
7-74 Food Preservers.
7-75 Dairy Product Processers.
7-76 Bakers, Pastrycooks and Confectionery Makers.
7-77 Tea, Coffee and Cocoa Preparers.
7-78 Brewers, Wine and Beverage Makers.
7-79 Food and Beverage Processers Not Elsewhere Classified.

7-71 Grain Millers and Related Workers

Workers in this unit group crush, grind, blend and otherwise process grains, spices and related foodstuffs for human or animal consumption.

Their functions include:

operating machinery for the production of flour, meal and animal feed and for processing rice;

grinding spices in a mill;

performing related tasks.

7-71.20 Grain Miller.

Operates machinery for processing grain (except rice) to produce flour, meal and animal feed:

starts machinery, such as cleaners, conveyors, grinders, hammer mills and sifters, and flow of grain to processing equipment; observes milling process, keeping grain moving at regular rate by tapping clogged spouts with mallet and by adjusting gates; examines product periodically and adjusts grinders as necessary; makes blends of flour, meal or feed by regulating flow of ingredients in specified proportions from bins to blending machines; takes samples for laboratory analysis; keeps records of materials received and products milled.

May operate equipment to crack and treat grain (except rice) for further processing in the manufacture of grain products such as breakfast foods. May specialise in grinding or milling particular kind of grain (except rice) and be designated accordingly.

7-71.30 Rice Miller.

Operates machinery for processing rice:

starts machinery, such as conveyors, sifters, hullers and polishers, and flow of rice to processing equipment; observes process, adjusting controls to maintain even flow of rice from storage bins; examines processed rice periodically and adjusts machines as necessary; keeps records of materials received and processed.

7-71.40 Spice Miller.

Grinds spices to specified consistency in a mill:

loads spice into feed bin by hand or by adjusting gates of storage hopper; adjusts grinding rollers to regulate fineness of ground spice; starts machine; re-grinds material which does not sift through screens.

May mix ground spices according to formula for use in canning and preserving foodstuffs.

7-71-90 Other Grain Millers and Related Workers.

This group includes grain millers and related workers not elsewhere classified, for example those who operate cleaning, washing and husking equipment to prepare grain and related foods for milling; operate equipment to sift and sort milled products at various stages in milling process; or supervise the storage and conservation of grain in silos.

7-72 Sugar Processers and Refiners

Workers in this unit group operate equipment to process sugar-cane and beet and make refined sugar.

Their functions include:

operating sugar-cane crushing equipment;

operating batteries of diffusers to extract sugar liquor from beet;

controlling tanks in which sugar liquor is purified by carbonation process;

tending tanks in which sugar crystals are produced from hot sugar liquor;

operating and controlling series of machines which refine beet or cane sugar by a continuous process;

performing related tasks such as extracting and refining sugar juices from maple, palm and other vegetable sources.

7-72.20 Sugar-Cane Grinder.

Operates equipment to extract juice from sugar-canes by crushing them in series of rollers:

controls speed of conveyor and rollers; uses wooden pole to prevent canes from jamming in rollers; adjusts spacing of rollers to obtain maximum quantity of sugar juice.

7-72.30 Diffuser Operator (Beet Sugar).

Tends automatic machine which extracts sugar liquor from beets:

starts diffuser and auxiliary equipment such as beet slicers, conveyors and automatic weighing scales; observes control panel dials and regulates flow of beets and water, speed of agitators and temperature of liquid to obtain maximum quantity of sugar juice; keeps screens clear and maintains liquid at desired level; records tonnage of beets sliced and diffused and other data.

7-72.40 Carbonation Man (Sugar Refining).

Controls tanks in which impurities in sugar liquor are precipitated by carbonation process:

admits sugar liquor to tank; controls flow of carbonating ingredients into liquor; tests solution and adjusts mixture if necessary.

May control particular phase of process only and be designated accordingly.

7-72.50 Crystalliser Operator (Sugar Refining).

Tends tank in which sugar crystals are produced from hot sugar liquor:

operates valves to admit sugar liquor to tank; starts agitators; admits cooling water to coils and ensures even cooling at controlled rate; stops machine when required crystallisation is obtained and drains off mixture of sugar crystals and liquor.

May add powdered sugar to liquor to induce crystallisation.

7-72.60 Continuous Sugar-Refining Machine Operator.

Controls series of automatic machines which refine beet or cane sugar by a continuous process:

controls flow of materials and liquid to and from machines and regulates temperatures; adds chemical ingredients to facilitate refining process according to instructions or using own judgment; corrects minor faults arising during operation or reports them to supervisor.

7-72.90 Other Sugar Processers and Refiners.

This group includes sugar processers and refiners not classified elsewhere, for example those who extract and refine sugar juices from maple, palm and other vegetable sources; operate evaporating equipment to reduce sugar liquor to a specific density; operate equipment to separate sugar crystals from molasses.

7-73 Butchers and Meat Preparers

Workers in this unit group slaughter animals, cut and dress meat and make sausages and other meat products.

Their functions include:

slaughtering animals;
flaying and trimming carcasses;
cutting and dressing meat for sale or further processing;
preparing ingredients for sausages and operating sausage-making machines;
performing related tasks.

7-73.10 Butcher, General.

Slaughters animals, bones and cuts up carcasses and prepares standard meat cuts:

kills or stuns animal and thrusts knife into jugular vein to drain off blood; flays and opens carcass and removes entrails; splits carcass by sawing and cleaving; removes edible offal and washes meat; cuts, saws and chops carcass into standard meat cuts or smaller portions as required.

7-73.20 Slaughterer.

Slaughters animals and flays, trims and reduces carcasses:

kills or stuns animal and thrusts knife into jugular vein to drain off blood; removes appendages, flays and opens carcass and removes inedible entrails; splits and reduces carcass by sawing and cleaving and washes meat.

May remove edible offal and place carcasses in cold-storage rooms. May specialise in particular slaughtering tasks.

7-73.30 Meat Cutter.

Cuts meat into portions suitable for sale to individual customers or for use in meat-processing plants:

cuts, saws and chops meat into pieces of different sizes and qualities; removes bones and sinews; trims off excess fat; minces meat as required; cleans tools and equipment and sharpens knives.

May make sausages and other meat products.

7-73.40 Sausage Maker.

Prepares ingredients for various kinds of sausages and similar products and operates machines for their manufacture:

weighs out various meats, spices and other ingredients according to recipe; chops, minces and mixes ingredients by machine as required; operates machine which forces sausage meat into sausage casings; pinches and ties ends of filled casings.

May specialise in a particular task and be designated accordingly.

7-73.90 Other Butchers and Meat Preparers.

This group includes butchers and meat preparers not classified elsewhere, for example those who specialise in the production of pork products or in the treatment and preparation of edible offal for use in meat-product making.

7-74 Food Preservers

Workers in this unit group cook, smoke, dry, freeze or dehydrate foodstuffs for canning or other kinds of preservation.

Their functions include:

cooking meat, fish, fruit, vegetables or other foods in large quantities;

sterilising foodstuffs prior to canning or bottling;

freezing or dehydrating fruit, vegetables or other foods;

curing foodstuffs by salting or smoking;

performing related tasks.

7-74.10 Preserving Cook (General).

Cooks meat, fish, fruit, vegetables or other foods in large quantities preparatory to canning or preserving:

weighs or otherwise measures ingredients; loads them into cooking vessels, such as kettles, pressure cookers, vacuum or evaporating pans and frying machines, manually or by means of chute or conveyor; cooks mixture, adding syrup, spices, colouring matter or other substances as required; drains off cooked foodstuffs by opening valve at bottom of vessel or by blowing material through drain with steam.

May stir contents with mechanical agitator. May test mixture with hydrometer or other instrument to determine consistency.

7-74.15 Fish-Preserving Cook.

Cooks fish and other sea or freshwater foods in large quantities preparatory to canning or preserving:

tends hot air or steam ovens or other equipment to cook fish and other sea or freshwater foods; observes thermometers, pressure gauges and other measuring instruments and adjusts cooker controls as necessary; determines when cooking is completed and removes foodstuffs from cooker.

7-74.20 Sterilising Cook.

Operates pressure-cooker or other vessel to sterilise meat, fish, fruit, vegetables or jam prior to canning or bottling:

loads foodstuffs to be sterilised into vessel; checks valves before starting pressure-cookers; raises temperature in cooker by increasing steam pressure; observes gauges and adjusts pressure as necessary; withdraws foodstuffs when operation completed.

May operate series of pressure-cookers working continuously. May be designated according to type of equipment used.

7-74.30 Foodstuffs Freezer.

Freezes fruit, vegetables and other foods:

places prepared food or cartons of food on shelves or conveyor belt in freezing unit; regulates temperature and freezing time, and removes foodstuffs when process is completed.

7-74.40 Foodstuffs Dehydrator.

Operates drying units to remove moisture from fruit, vegetables and other food:

examines size, shape and skin of food and estimates drying time; pushes car loaded with food into drying unit; adjusts heating and ventilation as necessary; pulls car out when dehydration is completed.

May keep record of drying time for each load.

7-74.50 Pickler, Food.

Cures meat, fish, other foods and food products:

rubs salt into foodstuff or immerses it in brine solution; controls salinity of brine; withdraws products when salting is completed.

May specialise in pickling particular kind of product and be designated accordingly.

7-74.60 Meat and Fish Smoker.

Operates smoke chambers or ovens to smoke meat, fish and other foodstuffs:

hangs foodstuff in smoke chamber; kindles wood, or lights gas fire to provide heat required for type of wood used; adds wood shavings or aromatic herbs as necessary; controls ventilation; removes products when smoking is completed.

7-74.90 Other Food Preservers.

This group includes food preservers not elsewhere classified, for example those who prepare foods for canning; extract essences from foods by heat processes and make concentrates or powders; whiten or enrich natural colours of fruit or vegetables; or dry fish in the sun.

7-75 Dairy Product Processers

Workers in this unit group process milk and cream and make dairy products.

Their functions include:

operating or tending equipment to pasteurise milk;

performing one or more tasks in making butter or cheese or tending machinery to make them in large quantities;

making ice cream;

performing related tasks.

7-75.10 Dairy Product Processer (General).

Performs one or more tasks in the preparation of various dairy products:

pasteurises raw milk or other dairy products to remove harmful bacteria; develops bacterial culture for use in making butter, buttermilk, cheese and other products; operates equipment to separate cream from milk and make butter; curdles milk and converts curds into cheese.

May make ice-cream.

7-75.20 Dairy Product Pasteuriser.

Operates pasteurising equipment to remove harmful bacteria from milk and other dairy products;

pumps cold raw milk or other dairy products through heating tank; maintains liquid at required temperature for specified time and pumps it through cooling unit before bottling; checks thermometers and gauges and makes necessary adjustments; cleans and sterilises tank and interconnecting pipes; disconnects filters and renews or cleans straining devices.

7-75.30 Butter Maker.

Performs one or more tasks in butter making:

pasteurises milk to eliminate harmful bacteria; separates cream from milk in centrifuge; adds lactic ferment to ripen cream; pours or pumps cream into mechanical churn; starts churn and controls moisture, temperature and churning time.

May salt butter in churn. May draw off buttermilk, add water and wash butter.

7-75.40 Cheese Maker.

Performs one or more tasks in cheese making:

pours milk into kettle or vat; adds acid bacteria (starter) to curdle milk and rennet to assist coagulation; cuts resulting curd and allows whey to sink to bottom of container; heats curd to prescribed temperature, stirring constantly, until it reaches desired firmness; scoops curd into burlap containers to drain off excess moisture; places cheese in moulds and presses it into shape.

May salt cheeses by placing them in brine. May supervise ripening of cheeses. May specialise in making particular type of cheese and be designated accordingly.

7-75.50 Ice-Cream Maker.

Makes ice-cream from milk, sugar and other ingredients:

measures and mixes ingredients; pasteurises mixture; pumps ingredients through homogeniser; pours mixture into freezing machine; starts machine to stir and cool mixture; unloads machine when ice-cream has required consistency.

May form ice-cream into special shapes.

7-75.90 Other Dairy Product Processers.

This group includes dairy product processers not elsewhere classified, for example those who salt cheeses by immersing them in brine or rubbing them with dry salt; operate machines which homogenise milk or mould butter or cheese into shape; make condensed or powdered milk; or make bacterial cultures used in butter, cheese and other dairy products making.

7-76 Bakers, Pastrycooks and Confectionery Makers

Workers in this unit group make various kinds of bread, cake, other flour products and chocolate and sugar confectionery.

Their functions include:

making bread, cake, biscuits, pastries, pies, macaroni and other flour products;

operating grinding, pressing, mixing and other machines in the manufacture of chocolate;

making confectionery from mixtures of sugar, chocolate and other ingredients;

performing related tasks.

7-76.10 Baker, General.

Makes bread, cake, biscuits, pastries, pies and other flour products:

calculates quantities of ingredients required; weighs out ingredients and mixes them by hand or machine; prepares and shapes dough and places it in oven; regulates oven temperature and checks progress of baking; removes baked products and places them on cooling racks; prepares and applies icings and fillings.

7-76.20 Bread Baker.

Makes all kinds of bread:

performs tasks similar to those of *Baker (general) (7-76.10)* but specialises in making bread from one or more kinds of cereals.

May, in a commercial bakery, specialise in one particular bread-making task, such as kneading dough or operating oven, and be designated accordingly.

7-76.30 Pastry Maker.

Makes tarts, cakes and other pastry products:

performs tasks similar to those of *Baker (general) (7-76.10)* but specialises in the making of cakes, tarts and other pastry products; decorates products in various ways, such as with icing squeezed from cone-shaped cloth bag.

May, in a commercial bakery, specialise in one particular pastry-making task, such as lining or filling pans or decorating products, and be designated accordingly.

7-76.40 Macaroni Maker.

Makes macaroni and similar wheat products:

makes dough from flour or semolina and water in mixing machine; starts and controls extrusion press to force dough through dies; changes dies and makes other adjustments as necessary; transfers racks of macaroni to drying room; regulates temperature and humidity of air in drying room; after prescribed drying time removes products for cutting or packing.

May specialise in a particular task and be designated accordingly.

7-76.50 Chocolate Maker.

Operates grinding, pressing, mixing and other machines to make chocolate:

grinds cocoa beans to liquid or paste in mill; operates hydraulic press to make blocks of cocoa butter from liquid chocolate; grinds blocks to cocoa powder; mixes liquid chocolate, sugar and other ingredients into dough by machine; converts coarse mixed chocolate into flakes in roller machine; heats and mixes flaked chocolate and cocoa-butter by machine to obtain desired texture and flavour.

7-76.60 Confectionery Maker.

Makes confectionery from mixture of sugar, chocolate and other ingredients:

weighs or measures ingredients; mixes them by hand or electric agitator; cooks batch in open or vacuum containers, adjusting temperature as required; operates heating, pulling, moulding and other machines; coats products by hand or machine with chocolate, sugar or other substances as required.

May specialise in making particular kind of confectionery or performing particular task and be designated accordingly.

7-76.90 Other Bakers, Pastrycooks and Confectionery Makers.

This group includes bakers, pastrycooks and confectioners not elsewhere classified, for example those who make biscuits and spiced bread; make chewing gum; make fondants, caramels and other sweets; enrobe fondants, caramels, nuts or other foods by hand or machine; operate automatic machines which mould chocolate, soft sweets or jellies; or use tempering machines to maintain correct temperature and grain of liquid chocolate.

7-77 Tea, Coffee and Cocoa Preparers

Workers in this unit group taste and grade various kinds of coffee and tea to guide blending and prepare coffee beans, chicory and cocoa beans.

Their functions include:

tasting brewed samples of coffee or tea;
operating machines to blend various grades of coffee or tea;
roasting blended coffee beans, chicory roots or cocoa beans in heated revolving cylinders;
performing related tasks.

7-77.20 Coffee and Tea Taster.

Tastes brewed samples of coffee or tea:

ascertains and judges flavour, aroma and other qualities of brewed sample of coffee or tea; estimates approximate market value of lot sampled; recommends specific mixtures of lots which will produce commercially acceptable blends.

May be required to determine country of origin of coffee or tea. May attend auctions and buy coffee or tea in bulk.

7-77.30 Coffee Blender.

Operates machine which mixes various grades of green coffee:

empties bags of specified grades of coffee into machine bin; starts blending mechanism; observes blending, adjusts machine as necessary and decides when blending is completed; manipulates levers to transfer blended coffee into elevators which convey coffee to cleaning bins or other processing units prior to roasting.

May tend completely automatic installation.

7-77.40 Tea Blender.

Operates machine which mixes various grades of tea:

weighs out specified quantities of required grades of tea; fills machine with weighed-out quantities of tea; starts machine, observes blending and regulates controls as necessary; decides when blending is completed.

May transfer blended tea to packing machine.

7-77.50 Coffee Roaster.

Roasts blended coffee beans or chicory roots in heated revolving cylinders:

loads cylinders with specified quantities of blended beans or chicory and starts machine; observes roasting process and adjusts heating mechanism as necessary; discharges roasted coffee or chicory onto cooling trays, spreads it evenly and starts cooling fans.

May grind coffee or chicory by machine.

7-77.60 Cocoa-Bean Roaster.

Roasts cocoa beans in heated revolving cylinders:

loads cylinders with cocoa beans and starts machine; observes roasting process and adjusts heating mechanism as necessary; tests beans during roasting process by tasting, smelling and feeling and decides when process is complete; discharges roasted beans into cooling receptacle.

May operate machine in which beans are crushed and husks and chaff are separated.

7-77.90 Other Tea, Coffee and Cocoa Preparers.

This group includes tea, coffee and cocoa preparers not elsewhere classified, for example those who break outer coverings of cocoa beans and crush them into nibs; or grind cocoa and coffee.

7-78 Brewers, Wine and Beverage Makers

Workers in this unit group mix, press, malt and ferment grains and fruits to make malt liquors, wine, fruit juices and other alcoholic and non-alcoholic beverages.

Their functions include:

germinating barley and other grains used in making distilled or malt liquors;
drying germinated grain;
cooking malt with water to prepare mash;
controlling fermentation process in making distilled or malt liquors;
producing yeast used in fermentation of mash;
performing various tasks in wine making;
tasting samples of wine or liquor;
making vinegar from malt, alcohol or wine;
operating presses to extract juices from fruit and making fruit juices and other non-alcoholic beverages;
performing related tasks.

Workers who distil alcohol to make alcoholic beverages such as whiskies are classified in unit group 7-44.

7-78.20 Germination Worker (Malting).

Germinates barley or other grain used in making distilled or malt liquors:

weighs grain and puts it into cisterns or tanks filled with water; soaks and stirs grain; loads soaked grain into rotating drum or perforated bin; controls temperature, air current, water sprinkling and rotation of drum; supervises removal of germinated grain to drying kiln.

7-78.25 Kilnman (Malting).

Dries germinated grain used in preparing malt for making distilled and malt liquors:

directs loading and distribution of grain in kilns; fires furnace and regulates temperature and air supply as necessary; turns grain over using mechanical plough; stops furnace when operation is completed.

7-78.30 Malt Cooker.

Cooks malt in water to prepare mash used in making distilled or malt liquors:

fills tubs (cookers) equipped with mechanical agitators with water to required level and steam heats to prescribed temperature; weighs out malt and puts it into heated water; starts mechanical agitators and cooks mixture for specified time at prescribed temperature.

May pump mash into cooling vat preparatory to distilling. May drain liquid mash or pump mash into tank preparatory to fermenting.

7-78.35 Fermenting-Room Man.

Controls fermentation process in making distilled or malt liquors:

pumps wort or mash into fermentation tanks and adds yeast; regulates steam-heating coil valves to maintain correct temperature during fermentation; tests specific gravity periodically and adds yeast, sugar or water as required; accelerates chemical action by admitting air; removes yeast by suction or other means and pumps fermented solution to settling tank; flushes fermenting tank with cold water.

7-78.40 Yeast Maker.

Makes yeast used in production of distilled and malt liquors;

weighs out prescribed amount of barley, rye or other grain meal and puts it in measured amount of water heated to specific temperature in special wooden vat; mixes grain and water with powered agitator; cooks mixture by admitting steam to vat; cools mash by running cold water into vat; pours prepared yeast solution or culture into mixture and stirs with agitator; regulates temperature of fermenting mash by running hot or cold water through vat; ascertains specific gravity and acidity of mash by using hydrometer and making simple chemical tests; separates yeast from liquor by using centrifugal separator or filter press.

May draw off yeast from fermentation tanks by suction pump or skimming.

7-78.50 Wine Worker.

Performs variety of tasks in wine making:

loads conveyors carrying bulk grapes or grape must to crushers and pressers; connects portable pumps between tanks and turns valves to pump wine and alcohol from fermenting and fortifying tanks to storage tanks; tends press which separates juice from must; racks wine and tends filters collecting sediment.

7-78.60 Wine and Liquor Taster.

Tastes samples of wine or liquor:

ascertains and judges flavour, aroma, colour and other qualities of wine and liquor; classifies samples according to quality standards; recommends specific mixtures of lots which will produce commercially acceptable blends.

May be required to determine place of origin and age of wine or liquor.

7-78.70 Vinegar Maker.

Carries out all processes connected with manufacture of vinegar from malt, denatured alcohol, wine or other source:

ferments must obtained from grains, denatured alcohol, wine or other source; clarifies fermented vinegar by filtering; controls temperature and quantities of materials required.

7-78.80 Fruit-Press Operator.

Extracts juice from fruit pulp using power press:

puts pulp in cloths or filter sacks by hand or fills them from feed line; places packed pulp in press and starts press to squeeze out juice; pumps juice from vat to storage tanks and puts pulp into containers.

7-78.90 Other Brewers, Wine and Beverage Makers.

This group includes brewers, wine and beverage makers not elsewhere classified, for example those who add hops and sugar to malt and water mash and cook them; blend wines and distilled liquors; rack and mature wines; clarify wines by turning bottles periodically or by chemical action; treat wine to make champagne; or make non-alcoholic beverages.

7-79 Food and Beverage Processers Not Elsewhere Classified

Workers in this unit group perform tasks not classified elsewhere in the preparation and processing of food products for human and animal consumption.

Their functions include:

extracting oil from oil-bearing seeds, nuts and fruits;

operating machines to refine crude soya bean, cotton seed, peanut and other edible oils;

operating equipment to process oils and fats used in making margarine and equipment to make margarine;

preparing fish and other sea or freshwater foods for sale or curing;

performing related tasks.

7-79.20 Oil Pressman (Edible Oils).

Extracts oil from oil-bearing seeds, fruits and nuts:

loads and tends crushing or hydraulic pressing machine to extract oil from cotton or sunflower seeds, soya beans, peanuts, olives, oil-palm nuts and other vegetable products; loads and tends cylindrical machine (expeller) or hydraulic press to extract oil from dried coconut (copra).

May use other methods of extracting oil. May specialise in particular task or type of vegetable product treated and be designated accordingly.

7-79.25 Refining-Machine Operator (Oils and Fats).

Operates machine which refines crude soya bean, cotton seed, peanut and other edible oils:

turns valves to pump oil and caustic solution into machine tanks; starts machine; sets thermostat, regulates other controls and maintains prescribed temperature; turns valves to pass oil and caustic mixture to purifying tanks and run off waste; controls pump passing refined oil to storage tank.

7-79.30 Hydrogenation Operator (Oils and Fats).

Operates equipment to process oils and fats used in making margarine:

starts pumps to transfer batches of refined oils and fats into converter; turns valves to regulate flow of hydrogen, steam, air and water into converter and adds specified quantities of catalytic agents; tests samples to ensure that product conforms to specifications; starts pumps to transfer treated oil into blending vessels; observes temperature and other control devices and makes necessary adjustments; pumps finished oils through filter into storage tanks.

7-79.40 Fish Butcher.

Prepares fish and other sea and freshwater foods for sale or curing:

scrapes off scales or strips entire skin from fish; cuts off head, tail and fins and removes entrails; bones fish and cuts large fish into cutlets, fillets or steaks as required.

May mince fish and make sausages, fish-cakes or other fish products. May sell fish and fish products in a retail establishment.

7-79.90 Other Food and Beverage Processers.

This group includes other food and beverage processers not elsewhere classified, for example those who perform various tasks in the manufacture of margarine or shell, clean, roast, blanch or polish nuts.

7-8 TOBACCO PREPARERS AND TOBACCO PRODUCT MAKERS

Workers in this minor group prepare and treat tobacco leaves and make cigars, cigarettes and other tobacco products. They are classified in the unit groups listed below.

7-81 Tobacco Preparers.
7-82 Cigar Makers.
7-83 Cigarette Makers.
7-89 Tobacco Preparers and Tobacco Product Makers Not Elsewhere Classified.

7-81 Tobacco Preparers

Workers in this unit group prepare tobacco leaves for making various tobacco products.

Their functions include:

grading cured tobacco leaves by type, quality and locality where grown;

mixing tobacco leaves according to formula to obtain a blend of distinctive flavour;

tending vacuum container which moistens tobacco for further processing;

removing mid-ribs and stalks from tobacco leaves by hand or machine;

shredding tobacco leaves by machine;

performing related tasks.

7-81.20 Tobacco Grader.

Grades cured tobacco leaves as to type and quality according to colour, texture, size of leaf, and locality grown:

takes samples of leaves from hogsheads received; examines and feels leaves to ascertain grade and class of tobacco, and decides whether leaves are to be conditioned prior to further processing; keeps record of grades contained in each hogshead received.

7-81.30 Tobacco Blender.

Mixes various grades and kinds of tobacco leaves in accordance with formula to form blend of distinctive flavour:

removes leaves of tobacco from each of several hogsheads; spreads leaves on trays and picks out those unsuitable for desired blend; weighs out quantities of each kind of leaf according to formula and mixes them together; sprinkles water containing acetic acid on leaves during mixing process.

7-81.40 Tobacco Conditioner Operator.

Tends vacuum conditioner (steam-pressure chamber) which moistens opened hogsheads of tobacco for further processing:

pushes hogsheads of tobacco into chamber or starts hydraulic lift that moves hogsheads into chamber; closes chamber door, starts vacuum pump, and turns valve to admit steam to chamber; observes gauges and dials on control panel to determine when temperature and air, steam and vacuum pressure reach specified levels to force steam through tobacco; removes hogsheads from chamber.

May condition tobacco leaves by dipping them in water or spraying them with water.

7-81.50 Tobacco Stripper (Hand).

Removes midribs and stalks from tobacco leaves by hand:

takes moistened leaf from pile; cuts and strips midrib and stalk from leaf, starting at tip end of leaf and avoiding damage to surface; stacks stripped leaves in piles and ties them together, keeping right and left halves separate, and covers them with wet burlap.

May specialise in stripping a particular kind of leaf, such as those used for filling or wrapping, and be designated accordingly.

7-81.60 Tobacco Stripper (Machine).

Removes mid-ribs and stalks from tobacco leaves by machine:

depresses foot treadle to start feed rollers in machine; takes moistened leaf from pile; inserts one leaf at a time between feed rollers of machine which strips mid-rib and stalk, and cuts leaves into halves; removes leaves from machine, stacks them in piles, ties them together, keeping right and left halves separate, and covers them with wet burlap; removes mid-ribs and centre stalks from machine.

May clean and oil machine. May specialise in stripping particular kinds of leaves, such as those used for filling or wrapping, and be designated accordingly.

7-81.70 Tobacco-Cutting-Machine Operator.

Cuts tobacco leaves into coarse or fine shreds by machine:

fills hopper of cutting machine with leaves; starts machine and watches cutting process to see that machine is shredding tobacco correctly; makes minor adjustments to machine, such as tightening bolts that hold knives in place and adjusting rollers.

May clean and oil machine and replace dull knives with sharpened ones.

7-81.90 Other Tobacco Preparers.

This group includes tobacco preparers not elsewhere classified, for example those who prepare flavouring mixtures and treat tobacco with them; mix and fluff cut or shredded tobacco in revolving cylinder; dry leaf or cut tobacco in a heating device; cool tobacco as it comes from steamer or drying room.

7-82 Cigar Makers

Workers in this unit group make cigars by hand or machine.

Their functions include:

making complete cigars by hand or machine;
performing related tasks.

7-82.20 Cigar Maker (Hand).

Makes complete cigar by hand:

tears or cuts section of binder leaf to desired size and lays it on table; takes filler tobacco and rolls it between the palms of both hands; lays rolled filler on binder and rolls them together to form bunch (inner part of cigar); glues or twists end of binder to hold it in position; cuts wrapper leaf to desired size; lays bunch on wrapper and rolls them together; glues end of wrapper to hold it in place; presses cigars in moulds after rolling to give them a finished shape.

7-82.30 Cigar Maker (Machine).

Makes complete cigar by machine:

spreads pre-cut binder leaf on breaker (rubberised fabric apron) of machine; places filler tobacco on top of binder and presses foot treadle, causing breaker to roll filler and binder together and form the bunch (inner part of cigar); removes bunch from machine and glues end of binder to hold it in place; cuts wrapper leaf to desired size, using die; places bunch in automatic rolling machine; feeds cut wrapper into machine, which wraps it in spirals around bunch; presses cigars in moulds to give them a finished shape.

May specialise in bunch making or wrapping and be designated accordingly.

7-82.90 Other Cigar Makers.

This group includes cigar makers not elsewhere classified, for example those who examine wrapper leaves and sort them for colour and size; separate good binder leaves from imperfect ones; lay wrappers on cigar-making machine and patch leaves which have holes in them; examine finished cigars for imperfections and sort for colour and size.

7-83 Cigarette Makers

Workers in this unit group make cigarettes by machine or hand.

Their functions include:

operating an automatic cigarette-making machine;
making special types of cigarettes by hand;
performing related tasks.

7-83.20 Cigarette Maker (Machine).

Makes cigarettes by operating an automatic machine:

feeds cut tobacco into hopper of machine; sets regulating device for flow of tobacco so that cigarettes will contain correct amount; places bobbins of cigarette paper on holding spindle; threads paper through guide rolls; fills gum receptacle; sets device to print trade name or mark; starts machine and watches operations to see that tobacco is automatically drawn and wrapped in cigarette paper, forming a continuous tube, and that tube of wrapped tobacco is cut into cigarettes at correct intervals; adjusts friction tension on holding spindles and automatic sharpener; replaces full cigarette-catching trays with empty ones.

May make cigarettes with tips of special material.

7-83.90 Other Cigarette Makers.

This group includes cigarette makers not elsewhere classified, for example those who make special sizes and types of cigarettes by hand, or examine cigarettes for proper filling, printing and gluing.

7-89 Tobacco Preparers and Tobacco Product Makers Not Elsewhere Classified

Workers in this unit group perform miscellaneous tobacco production tasks.

Their functions include:

pulverising and blending tobacco to make snuff tobacco;
making rolls or plugs of chewing tobacco by hand or machine;
preparing plugs of pipe tobacco;
inspecting packaged tobacco products to detect defects;
performing related tasks.

7-89.20 Snuff Maker.

Makes snuff tobacco by pulverising and blending various types of tobacco with machines:

places tobacco leaves, stalks and chopped tobacco in a bin, adds salt solution and allows mixture to ferment for specified period; watches fermentation, turning mixture occasionally;

toasts fermented tobacco on heated table, and pulverises it to flour-like consistency in a grindling machine; sifts snuff flour through fine mesh-wire or cloth screens; blends various types of snuff in mixing machine, according to formula, and adds aromatic oils or essences.

May specialise in a particular snuff-making process, such as fermenting, grinding, sifting, or snuff blending, and be designated accordingly.

7-89.90 Other Tobacco Preparers and Tobacco Products Makers.

This group includes other tobacco preparers and tobacco products makers not elsewhere classified, for example those who form plugs of chewing tobacco by hand; press plugs of chewing tobacco by machine; make plugs of tobacco which are to be sliced for making pipe tobacco.

7-9 TAILORS, DRESSMAKERS, SEWERS, UPHOLSTERERS AND RELATED WORKERS

Workers in this minor group make, or take part in making, garments, hats, gloves and other articles of textile, fur, leather and similar materials; upholster furniture and the interiors of vehicles and sew textile products for furniture and decoration. They are classified in the unit groups listed below:

7-91 Tailors and Dressmakers.
7-92 Fur Tailors and Related Workers.
7-93 Milliners and Hatmakers.
7-94 Patternmakers and Cutters.
7-95 Sewers and Embroiderers.
7-96 Upholsterers and Related Workers.
7-99 Tailors, Dressmakers, Sewers, Upholsterers and Related Workers Not Elsewhere Classified.

Workers who prepare and grade hides, skins and pelts are classified in minor group 7-6. Designers of new garment styles are classified in unit group 1-62.

7-91 Tailors and Dressmakers

Workers in this unit group make complete items of tailored clothing, dresses and other made-to-order garments (except fur garments), perform the more difficult tasks in the manufacture of ready-to-wear garments, and alter and repair garments.

Their functions include:

making overcoats, suits, skirts and similar tailored garments to clients' individual requirements;
performing the more difficult hand- or machine-sewing tasks in the manufacture of ready-to-wear clothing;
making complete dresses;
making complete shirts, blouses, lingerie and corsetry;
altering, renovating and repairing garments.

Workers making fur garments are classified in unit group 7-92. Workers performing routine sewing operations, by hand or machine, in the manufacture of garments are classified in unit group 7-95.

7-91.20 Tailor, Made-to-Measure Garments.

Makes complete garments or performs the more difficult tasks in making and altering overcoats, suits, skirts and other tailored garments (except fur garments) according to customer's requirements:

measures customer for size; makes garment patterns or alters standard pattern in accordance with customer's measurements and requirements; marks out material and cuts it to pattern; sews and pads garment parts to give them shape and bastes them together; fits basted garment on customer, marks parts requiring alteration and corrects defects; sews parts permanently together by hand and machine and finishes garment.

May specialise in making one type or part of garment, or in altering clothing.

7-91.30 Tailor, Ready-to-Wear Garments.

Performs the more difficult hand- or machine-sewing tasks in the manufacture of ready-to-wear overcoats, suits, skirts and other tailored clothing:

bastes and sews canvas into coat parts prepared by *Garment cutter (except leather) (7-94.50);* fits coat collar facings to under-collar and sews them together; bastes collar to coat and stitches them together; stitches shoulder padding, coat facing and lining together at the armholes; performs related tasks in coat, trouser, skirt and waistcoat manufacture.

May perform finishing operations by hand or machine. May specialise in a particular task or series of tasks and be designated accordingly. May alter clothing to fit individual customers or repair defective garments.

7-91.40 Dressmaker.

Makes complete dresses and assimilated garments, and executes alterations and repairs:

measures customer for size; makes garment patterns or alters standard pattern in accordance with customer's measurements and requirements; marks out material and cuts it to pattern; bastes garment parts together, fits on customer and makes necessary alterations; sews parts together by hand and machine and finishes garment; alters and repairs dresses and assimilated garments.

7-91.90 Other Tailors and Dressmakers.

This group includes tailors and dressmakers not elsewhere classified, for example those specialising in making shirts, blouses, lingerie or corsetry completely; taking customers' measurements; fitting men's and women's ready-to-wear garments; examining garments for finish and size and trimming loose threads.

7-92 Fur Tailors and Related Workers

Workers in this unit group make, alter, repair and renovate garments and other articles of fur.

Their functions include:

making complete fur garments or performing the more difficult tasks in making, altering, renovating and repairing fur garments and other fur articles;

preparing patterns and full-sized canvas models of garments and other articles;

sorting, grading and matching furs prior to cutting and making them into garments or other articles;

cutting fur according to pattern for making and repairing garments or other articles;

stretching and trimming dressed furs to conform to pattern outline of garments or other articles;

reclaiming furs or skins from old coats, gluing fabric to interior of fur coats and trimming blocked fur garments.

Workers who sew fur articles are classified in unit group 7-95.

7-92.20 Fur Tailor.

Makes complete fur garments or performs the more difficult tasks in making, altering, renovating and repairing fur garments and other fur articles:

grades, sorts, matches and prepares furs to be used in making or repairing particular fur garments or other fur articles; prepares patterns and cuts furs according to patterns; sews pieces together; stretches and trims sewn parts to conform to patterns; finishes garments or other articles by machine and hand sewing; repairs, alters and renovates fur articles; estimates cost of new articles and of altering, renovating and repairing used articles.

7-92.30 Fur Patternmaker.

Prepares patterns and makes full-size canvas models of fur garments and other fur articles:

draws pattern on paper of new or renovated fur garment or other fur article in accordance with design, for standard size or to suit individual customer's measurements; makes canvas model according to pattern; checks pattern and model for accuracy and makes necessary alterations; passes them to fur cutters and finishers; examines completed article for defects.

Workers specialising in designing fur garments are classified in unit group 1-62.

7-92.40 Fur Grader and Matcher.

Sorts, grades and matches furs for individual garments or other articles:

grades furs according to colour, shading, size and density; selects furs that match in size, colour, density and length of hair and makes them into single garment bundles ready for cutter.

May specialise in one or more types of fur.

A worker grading pelts before or immediately after they have been dressed is classified as *Pelt grader (7-62.20)*.

7-92.50 Fur Cutter.

Cuts fur according to pattern for making or repairing garments or other articles:

selects required number of furs; arranges furs on pattern outlines, ensuring that parts to be joined together match in quality and colour; cuts furs to required size and shape with hand knife.

May also perform some or all of the duties of *Fur grader and matcher (7-92.40)* and *Fur nailer (7-92.60)*.

7-92.60 Fur Nailer.

Stretches and trims dressed furs to conform to pattern outline of garment or other article:

chalks outline of pattern on worktable; dampens skin side of fur with water; places fur, skin side up, on table, stretches it to cover outline and nails it in position; allows fur to dry in stretched position and removes nails; chalks outline of paper pattern on skin side of fur and trims fur along outline with knife.

7-92.90 Other Fur Tailors and Related Workers.

This group includes fur tailors and related workers not elsewhere classified, for example those who rip old fur coats into strips to salvage furs or skins; glue fabric to interior of fur coats to reinforce hide; or trim blocked fur garments to remove excess fur around chalk-marked pattern on inside of garment.

7-93 Milliners and Hatmakers

Workers in this unit group make and finish hats.

Their functions include:

making women's hats out of various materials such as felt, silk, velvet and straw;

operating a machine that stretches felt cones to form hat shapes;

finishing and decorating hat forms or making various kinds of headgear for special purposes.

Formers of fur-felt or wool-felt hoods are classified in unit group 7-59.

7-93.20 Milliner (General).

Makes women's hats completely, using a variety of materials such as felt, silk, velvet and straw:

makes own designs or copies existing designs and models; marks out and cuts material according to pattern or own judgment; smooths, wires and blocks hat parts and sews them together by hand or machine; adds lining and trimming, decorates hat as required or according to own judgment; makes hat blocks and hats for individual requirements or stock; alters and renovates hats.

7-93.30 Hat-Blocking-Machine Operator.

Operates machine that stretches felt cones to form hat shapes:

places felt cones in container of water or on racks in steam room to condition cone; pulls conditioned cone onto hat block and positions block on holding device of machine; presses levers to close machine that grasps rim of cone and pulls rim outward to form brim; starts ram that forces block upward into cone to shape crown; sprays or pours water over shaped cone to stiffen it; releases lever and removes hat from machine.

7-93.90 Other Milliners and Hatmakers.

This group includes milliners and hatmakers not elsewhere classified, for example those who specialise in making cork and other sun helmets, silk hats and other headgear for special purposes; buffing or sanding hat bodies to smooth and polish surface; trimming hat brims to specified width.

7-94 Patternmakers and Cutters

Workers in this unit group make patterns and mark and cut materials in the manufacture of garments, gloves and miscellaneous products of textile and kindred materials and leather.

Their functions include:

drawing and cutting out patterns for making suits, dresses, shirts, blouses, hats and caps and other garments;

marking outlines of patterns on cloth, light leathers or similar materials to guide cutting;

cutting material (other than leather) according to pattern outline, usually several layers at a time, for making up into garments and gloves;

cutting leather into parts for making leather garments and gloves;

performing patternmaking, marking and cutting tasks in the manufacture of other products such as soft furnishings, canvas goods and umbrellas.

7-94.20 Garment Patternmaker.

Draws and cuts out patterns of parts of suits, dresses, shirts, blouses, hats, caps and other garments made from materials other than fur:

studies sketches, models and measurements of required garments; draws shapes of required parts in paper, canvas or other material; annotates drawings with code numbers, letters and markings to guide cutters and sewers; cuts out shapes or perforates their outlines with tracing wheel to form required patterns.

May have model made to test pattern and make required adjustments. May also design garments.

Fur patternmaker is classified in 7-92.30. Workers specialising in designing new styles for clothing are classified in unit group 1-62.

7-94.30 Hat and Cap Patternmaker.

Draws and cuts out patterns of parts of hats and caps:

performs tasks similar to those of *Garment patternmaker (7-94.20)*, but specialises in patterns of hats and caps.

7-94.40 Garment Marker.

Marks outlines of patterns on cloth, light leathers, or similar materials used in garment making:

arranges patterns on material to permit most economical cutting, ensuring design will match in different parts of assembled garment; traces outlines of patterns on material with chalk, crayon or soap; writes design number and size within the outlines.

May also make guide for cutter by arranging and drawing outlines of patterns on paper of same size as material to be cut.

7-94.50 Garment Cutter, except Leather.

Cuts single or multiple layers of material (other than leather) into parts for making up into clothing:

holds material securely with hand and cuts around pattern or along markings on material using shears or knife; cuts notches in edges of parts to mark parts for assembly.

May make up layers of material and cut fabric into parts using portable electric cutter. May operate machine which cuts by pressing shaped metal dies through material. May be designated according to type of cutting appliance, material used or garment cut.

7-94.60 Leather Garment Cutter.

Cuts leather into parts for making leather garments:

examines leather for blemishes and quality and to ensure that parts are cut out in the most suitable and economical way; cuts leather according to patterns by shears, scissors, hand knife, hand-operated guillotine, power-driven oscillating knives or machine which presses shaped dies through leather.

May specialise in one or more types of cutting and be designated accordingly.

7-94.70 Glove Cutter, except Leather.

Cuts material, other than leather, for glove making:

cuts material by shears, scissors, hand-operated guillotine, power-driven oscillating knives or machine which presses shaped dies through material; trims finished gloves.

May specialise in one or more types of cutting and be designated accordingly.

7-94.80 Leather Glove Cutter.

Cuts leather for making leather gloves:

dampens and stretches leather to locate flaws, ascertain flexibility and most economical way of cutting; cuts leather by shears, scissors, hand knife, hand-operated guillotine, power-driven oscillating knives or a machine which presses shaped dies through leather; trims edges of finished gloves.

May specialise in one or more types of cutting and be designated accordingly.

7-94.90 Other Patternmakers and Cutters.

This group includes patternmakers and cutters not elsewhere classified, for example those who make patterns, or mark or cut materials, for making household linen, upholstery, mattresses, sails, awnings, tents and umbrellas.

7-95 Sewers and Embroiderers

Workers in this unit group sew and embroider garments, gloves and miscellaneous products of fur, textile and kindred materials.

Their functions include:

performing various hand- and machine-sewing tasks in making, altering and repairing articles of textile and kindred materials, except those of leather or fur:

sewing leather parts by hand in the manufacture and repair of garments or gloves;

performing one or more sewing tasks in the making, alteration, renovation and repair of garments and other articles of fur;

operating a standard or specialised, single- or multiple-needle sewing machine;

embroidering decorative designs on garment parts and other materials by machine;

performing other sewing and embroidering tasks.

7-95.10 Hand and Machine Sewer (General).

Performs various hand- and machine-sewing tasks in making, altering and repairing articles of textile and kindred materials:

sews by hand and machine in a factory, retail store, hotel or other establishment in connection with the manufacture, renovation or repair of various articles of textile and kindred materials.

7-95.20 Garment Hand Sewer (except Leather and Fur).

Performs by hand one or more sewing tasks in making or repairing garments, except those of leather or fur:

sews visible stitching on high-grade garments; bastes parts together; stitches linings into position; sews on buttons and trimmings; ornaments garments with decorative stitching other than embroidery.

May specialise in a particular task and be designated accordingly.

7-95.30 Leather Garment Hand Sewer.

Performs hand-sewing tasks in making and repairing leather garments or gloves:

sews together leather parts or leather and fabric parts; sews leather binding on edges of garments; sews linings and buttons to leather garments or gloves.

May specialise in one or more of above hand-sewing tasks. May do decorative hand stitching on leather garments or gloves.

7-95.40 Fur Hand Sewer.

Performs hand-sewing tasks in making, altering, renovating and repairing fur garments and other fur articles:

sews furs together and sews bindings to edges of fur garments and other fur articles; sews into position padding for cuffs and collars, linings and interlinings of fur garments; sews buttons, hooks and other fastenings on fur garments.

7-95.50 Sewing-Machine Operator.

Operates standard or specialised single- or multiple-needle sewing machine in making, repairing or renovating garments, gloves and miscellaneous products in textiles and kindred materials:

places bobbins of thread on machine; passes thread through machine guides and eye(s) of machine needle(s); adjusts machine according to sewing work to be done; guides material under needle(s) and removes it when sewing is completed; replaces empty bobbins and damaged needles.

May be designated according to kind of sewing done or to type of machine used.

Machine embroiderer is classified in 7-95.70.

7-95.60 Hand Embroiderer.

Works decorative designs on garment parts or other materials by hand stitching:

fastens embroiderer's hoop or frame around area to be worked on; sews to pattern or own design, changing needles, types and colours of threads or type of stitch as required.

May mark outline of design on material before commencing embroidery. May specialise in one or more types of embroidery.

7-95.70 Machine Embroiderer.

Reproduces ornamental designs on garment parts or other materials by use of standard or specialised single- or multiple-needle sewing machine:

places bobbins of selected threads on machine; passes threads through machine guides and the eye(s) of machine needle(s); adjusts machine for thread tension and type of stitch; arranges material in position for stitching; guides material or sewing arm of machine in accordance with design, or guides point of pantograph on enlarged design; changes threads as required; replaces empty bobbins and damaged needles; removes article when embroidering is completed.

May mark outlines of design on material before embroidery is started. May operate machine which embroiders several articles or designs at the same time.

Crocheter (machine) is classified in 7-59.35.

7-95.90 Other Sewers and Embroiderers.

This group includes sewers and embroiderers not elsewhere classified, for example those specialising in hand-sewing such items as household linen, hats, caps, upholstery, mattresses, sails, awnings, tents or umbrellas.

7-96 Upholsterers and Related Workers

Workers in this unit group upholster furniture, make mattresses, make and install interior decorations of textiles, leather and similar materials, and perform related tasks.

Their functions include:

installing, arranging and securing springs, padding and covering material to furniture frames;

installing covering and cushioning for seats and other furnishings on vehicles, such as motor cars, railway coaches and aircraft;

making mattresses by hand or machine;

fitting and installing soft furnishings and interior decorations of textiles, leather and similar materials.

Patternmakers and cutters are classified in unit group 7-94 and *Sewers and embroiderers* in 7-95.

7-96.20 Furniture Upholsterer.

Installs, arranges and secures springs, padding and covering material to furniture frames:

makes base for seats with canvas bands and burlap; secures metal springs, sponge rubber, animal hair, cotton felt or other padding to seat, back, arms and other parts of furniture; takes measurements and cuts covering material to required shapes; sews parts together or sends to sewer; aligns material, stretches it over parts to be covered and nails, sews or cements it into position; repairs upholstered parts of worn furniture.

May make loose cushions. May work with ready-cut shapes.

7-96.30 Vehicle Upholsterer.

Fits and installs interior trim and seat cushioning and covering in vehicles, such as motor cars, railway coaches and aircraft:

takes measurements, or works from plans; prepares and fixes sound- and draughtproofing materials to vehicle ceiling, door panels and other interior parts; fits canvas or other base, padding and springs to seats; cuts final covering to required shapes and sews them together (or passes them to sewer), or uses ready-cut and sewn shapes for seat covers and interior trim; fits and installs seat covers and interior trim.

May also fit and install floor covering, curtains and fabric roofs.

7-96.40 Mattress Maker.

Makes mattresses completely by hand or machine:

arranges and fits springs, sponge rubber, animal hair, flock or other filling material inside mattress cover; closes cover by sewing; evens out filling material by beating and hand smoothing; marks points for tufting buttons on both sides of mattress cover and joins opposite buttons with sewing cord to give shape to mattress; sews mattress border to side padding to hold filling in position; gathers and stitches edges of mattress into roll to preserve shape of mattress.

May make mattress covers and repair and rebuild mattresses.

7-96.90 Other Upholsterers and Related Workers.

This group includes upholsterers and related workers not elsewhere classified, for example those making completely or fitting and installing curtains and pelmets, wall and furniture covers, quilts or other soft furnishings; those specialising in one operation on an assembly line for upholstering furniture frames, or for making mattresses; and those stripping upholstered furniture for repair or renovation.

7-99 Tailors, Dressmakers, Sewers, Upholsterers and Related Workers Not Elsewhere Classified

Workers in this unit group perform various tasks in the manufacture and repair of garments, soft furnishing and related products, not performed by those classified elsewhere.

Their functions include:

making sails, tents, awnings and similar articles by hand or machine;

assembling and covering umbrellas;

performing other tasks related to the foregoing.

7-99.20 Sail, Tent and Awning Maker.

Makes completely sails, tents, awnings and similar products, by hand or machine:

examines drawings and specifications of required product; selects and lays out material for cutting; cuts material to required shapes by hand shears, metal punches or cutting machine; sews section of material together or passes work to sewer; attaches rope and metal fittings, such as eyelets.

May take measurements, prepare drawings and write specifications, splice wire and rope, dress material with protective substances, assemble and mount awning parts on frame for erection.

7-99.30 Umbrella Maker.

Assembles and covers umbrellas:

cuts covering material with shears according to patterns; sews sections together on sewing machine; attaches covering to collapsible frame, using thread and needle; fastens handle to frame and presses metal tip on end of umbrella.

May assemble and rivet parts of frame together and repair umbrellas.

7-99.90 Other Tailors, Dressmakers, Sewers, Upholsterers and Related Workers.

This group includes tailors, dressmakers, sewers, upholsterers and related workers not elsewhere classified, for example those making artificial flowers; making decorative trimmings with feathers; making hand-knotted carpets; making footwear mainly of rope or canvas.

8-0 SHOEMAKERS AND LEATHER GOODS MAKERS

Workers in this minor group make and repair footwear mainly of leather and make saddles, harness and various other kinds of products from leather or similar materials. They are classified in the unit groups listed below:

8-01 Shoemakers and Shoe Repairers.
8-02 Shoe Cutters, Lasters, Sewers and Related Workers.
8-03 Leather Goods Makers.

Those making footwear of materials other than leather are classified elsewhere. Workers making garments and gloves of leather are classified in minor group 7-9.

8-01 Shoemakers and Shoe Repairers

Workers in this unit group make and repair standard or special footwear, mainly of leather.

Their functions include:

making standard or orthopaedic footwear to individual requirements;

repairing leather footwear;

making other special types of footwear to order.

Workers who make footwear mainly of rope or canvas are classified in unit group 7-99, wood in unit group 8-19, rubber or plastics in unit group 9-01, and shoes of raffia, straw or similar materials in unit group 9-49.

8-01.10 Shoemaker, General.

Makes leather footwear to requirements of individual customers:

measures feet and selects last; makes patterns, selects leather for upper parts and outlines pattern on leather; cuts out and trims parts by hand and sews them together; punches eyelet holes and inserts eyelets; tacks insole to last and draws upper over last; shapes upper on last, folding bottom of upper over edge of insole and fixes them together; cuts stitching channel around edge of sole; fixes sole to upper; builds up and fixes heels; trims and smooths footwear and applies inked wax or stain where required; inserts inner sole and applies final polish.

8-01.20 Orthopaedic Footwear Maker.

Makes special leather footwear to individual requirements of customers with foot or leg deformities:

performs tasks similar to those of *Shoemaker (general) (8-01.10)*, but specialises in making shoes from prescriptions, drawings or other specifications to correct foot or leg deformities.

May take necessary measurements or plaster casts, prepare drawings and use prepared uppers after adapting them to requirements.

8-01.30 Shoe Repairer.

Repairs leather and other footwear:

removes old outer soles and heels; cleans surfaces where necessary; selects or cuts new parts; cuts stitching channel on new outer sole; puts new sole in place and fixes it by nailing, hand or machine sewing or using adhesive; builds up heel and fixes it in place; patches and restitches uppers if necessary; trims, stains and polishes new surfaces.

May replace only part of sole and heel.

8-01.90 Other Shoemakers and Shoe Repairers.

This group includes shoemakers and shoe repairers not elsewhere classified, for example those who specialise in making special types of footwear, such as mountain boots, riding boots and ballet shoes.

8-02 Shoe Cutters, Lasters, Sewers and Related Workers

Workers in this unit group make parts of shoes and perform specialised tasks in the manufacture of shoes of leather and similar materials.

Their functions include:

making patterns to guide the cutting of shoe parts;

cutting out, preparing and fitting together shoe parts;

sewing shoe parts together;

examining and finishing footwear;

performing related tasks.

8-02.15 Shoe Patternmaker.

Prepares patterns for use as guides in cutting or trimming parts of footwear or in preparation of cutting dies:

makes pattern from drawings or other specifications, or by fitting pieces of paper over last to obtain contour; cuts out metal, wood or millboard master patterns by hand; inserts master patterns in machine and operates it to produce working patterns; binds edges of working patterns with metal.

May specialise in pattern cutting and be designated accordingly.

8-02.20 Clicker Cutter (Machine).

Operates press machine which cuts out upper parts of footwear:

lays material on table of machine; selects cutting dies; arranges dies on material to cut it economically and avoid weaknesses; cuts out shoe parts by lowering press on to dies; removes cut-out parts from material.

May specialise in part cut (for example linings) or material used and be designated accordingly.

8-02.25 Shoe Cutter (Hand).

Cuts out upper parts of footwear by hand:

lays material on bench; selects working pattern of part and arranges it on material to cut it economically and avoid weakness; cuts material around edges of pattern with knife; removes cut-out part from material.

May specialise in part cut or material used and be designated accordingly.

8-02.30 Uppers Preparer.

Prepares and assembles upper parts of footwear for sewing:

thins down edges of shoe upper parts by cutting or shaving them in machine; fixes parts together with adhesive; trims edges and turns them in where required.

May specialise in one of the above tasks (for example thinning or trimming) and be designated accordingly.

8-02.35 Sole Pressman.

Operates press machine which cuts out soles of footwear:

lays material on table of machine; selects cutting dies and arranges them on material to cut it economically and avoid weaknesses; cuts out soles by lowering press on to dies; removes cut soles from material.

8-02.40 Sole Fitter.

Prepares rough soles for assembling on last:

sorts soles according to size, shape and type; adjusts rollers of machine according to average thickness of groups; feeds individual sole parts into machine to cut or level them to uniform thickness; trims parts to proper size; cuts stitching channel around edge of outer sole.

May specialise in one or more of above tasks (for example thinning or channel cutting) and be designated accordingly.

8-02.45 Laster.

Joins upper parts of footwear to insole in preparation for sewing together:

places and tacks insole on last; fixes last in holding jig; pulls upper onto last by machine to give it required shape; checks alignment of toe and heel of upper; fixes bottom of upper in pincers of machine which hold it evenly and closely over edge of insole; fixes folded part of upper to insole by operating tacking device or by spreading an adhesive solution along edge of insole.

May specialise in one or more of above tasks and be designated accordingly.

8-02.50 Shoe Sewer (Machine).

Operates hand-, foot- or power-driven machine to sew together parts of footwear:

places spool of special thread on holding device and in shuttle of machine; passes thread through machine guides or eye of needle; adjusts tension of thread; arranges parts in position for sewing and guides parts under needle; replaces empty spools and broken needles.

May specialise in type of machine used (for example flat, cylinder, brake, or mackay machine) or parts sewn and be designated accordingly.

8-02.55 Shoe Finisher.

Examines and finishes footwear:

trims edges of soles and heels and smooths surfaces; irons in edges of soles, heels and uppers where required; does ornamental nicking; applies inked wax, stain or paint to sole and heel and polishes them.

May specialise in one or more of the above operations (for example trimming or ironing) and be designated accordingly.

8-02.90 Other Shoe Cutters, Lasters, Sewers and Related Workers.

This group includes shoe cutters, lasters, sewers and related workers not elsewhere classified, for example those who specialise in shaping some upper parts; building up heels and fixing them to footwear; removing creases from uppers; giving final polish; sorting and matching footwear for size, grain and colour; inserting thin inner sole in footwear.

Shoe repairers are classified in unit group 8-01.

8-03 Leather Goods Makers

Workers in this unit group make and repair articles mainly of leather and similar materials (except shoes, garments and gloves).

Their functions include:

making and repairing, by hand or machine, articles such as luggage, brief-cases and leather novelties;

making and repairing saddles and harnesses for use on animals;

cutting out, shaping and padding parts for making leather articles;

sewing and stitching leather parts by hand or machine;

assembling leather goods and attaching fittings;

performing related tasks.

8-03.10 Leather Goods Maker (General).

Makes, by hand and machine, a variety of products consisting mainly of real or artificial leather, such as handbags, wallets, luggage, brief cases, belting, footballs and leather novelties:

selects or prepares patterns and cuts materials; thins edges of leather and shapes parts; bores and punches holes; glues and sews parts together; rivets, trims and smooths parts where necessary; stains, polishes, embosses or otherwise treats leather; attaches metal parts and fittings.

8-03.20 Saddler and Harness Maker.

Makes, by hand or machine, saddles, collars and harness for use on horses and other animals:

selects leather and cuts out parts of saddle or harness; shapes, pads, rivets, trims and sews leather parts; punches or bores holes; stains leather to required colour; fits metal parts.

May repair and ornament saddles or harness and upholster in leather.

8-03.30 Leather Cutter.

Cuts out leather parts for making a variety of products:

selects leather; lays it on bench and cuts out parts by hand, using pattern and knife or shears, or lays it on table of guillotine or cutting press and cuts by operating guillotine or press after fitting appropriate die.

May specialise in cutting by hand or machine and be designated accordingly.

8-03.40 Leather Sewer, Hand.

Sews leather parts together by hand to make a variety of products:

marks off holes by measuring and pricking or by using a sharp-toothed wheel; makes holes by punching or boring; pulls thread through holes with needle or hooked instrument or pushes it through with a pointed piece of wood or metal; repeats process in opposite direction with another thread or carries out both processes simultaneously; draws threads tight; repeats processes until work is completed.

May do repairs, treat thread with wax or other material and do single-thread sewing.

8-03.50 Leather Sewer, Machine.

Operates a hand-, foot- or power-driven machine to sew leather parts together to make a variety of products:

places spool of thread on holding device and in shuttle of machine; passes thread through machine guides and eye of needle; adjusts tension of thread; arranges parts in position for sewing; guides parts under needle; replaces empty spools and broken needles.

May make repairs to products. May specialise in particular type of machine or type of parts sewn and be designated accordingly.

8-03.60 Leather Goods Assembler.

Assembles leather goods, such as luggage, handbags, belting and leather novelties:

fixes together ready-made parts of leather goods; trims loose threads from inner seams of products, using scissors; punches holes, staples and rivets parts together and attaches metal, plastic and other fittings; applies liquid cement where necessary and presses folds.

May do finishing sewing by hand or machine.

8-03.90 Other Leather Goods Makers.

This group includes leather goods makers not elsewhere classified, for example those who specialise in making fetlock covers, knee pads, spur fittings and whips.

8-1 CABINETMAKERS AND RELATED WOODWORKERS

Workers in this minor group make and repair wooden furniture, highly finished wooden fittings and similar objects, set and operate precision woodworking machines to saw, shape, plane, turn and carve wooden products and perform related woodworking tasks not elsewhere classified such as making wooden carts, wheels, patterns, models, casks, and smoking pipes. They are classified in the unit groups listed below:

8-11 Cabinetmakers.
8-12 Woodworking Machine Operators.
8-19 Cabinetmakers and Related Woodworkers Not Elsewhere Classified.

Wicker furniture maker is classified in unit group 9-42; restorers working on wooden objects of artistic or historical value are classified in unit group 1-61; sawing-machine operators in sawmills and *Veneer cutter* are classified in unit group 7-32.

8-11 Cabinetmakers

Workers in this unit group perform the more skilled tasks in the manufacture and repair of wooden furniture, highly finished wooden fittings and similar objects.

8-11.20 Cabinetmaker.

Makes completely and repairs wooden articles, such as cabinets and furniture, using woodworking machines and hand tools:

studies drawings of articles to be made and marks off outline of parts on wood; shapes parts by operations such as cutting, planing and turning; trims joints to make them fit together snugly; glues joints, fits parts together and clamps them until glue is dry; drives nails, dowels or screws through joints to reinforce them; fits subassemblies and other parts together to form completed unit; finishes article, attaching trim, applying veneer, stain or polish and installing hardware such as hinges and drawer pulls; repairs and refashions high-grade articles of furniture.

May make sketches or drawings of work to be done.

May specialise in making a particular type of product and be designated accordingly.

8-11.90 Other Cabinetmakers.

This group includes cabinetmakers not elsewhere classified, for example those who make billiard tables, piano shells, small wooden cases for jewellery and instruments, clock cases and similar products.

8-12 Woodworking Machine Operators

Workers in this unit group set and operate woodworking machines, such as precision sawing, shaping, planing, turning and woodcarving machines.

Their functions include:

setting and adjusting various kinds of machines for operation by others;

operating previously set machines for the standardised production of wooden articles;

setting and operating one or several types of woodworking machines.

8-12.05 Woodworking Machine Setter (General).

Sets cutting tools in woodworking machines, such as precision sawing, shaping, planing, turning and carving machines and prepares them for operation by others:

studies drawings or sample of product to be made by machine; selects appropriate tools and sets them on cutter head (chuck) in machine and adjusts guides; starts and operates machine to produce a specimen of finished product; checks specimen with drawing or sample and, if necessary, readjusts setting of tools or machine set-up.

8-12.08 Woodworking Machine Operator (General).

Operates previously set-up woodworking machines, such as precision sawing, shaping, planing, turning or carving machines:

starts machine after it has been set up and prepared by setter; ensures machine is working correctly; positions pieces of wood in machine, or manipulates wood forms to carry out various machining operations.

8-12.10 Woodworking Machine Setter-Operator (General).

Sets up, prepares and operates woodworking machines, such as precision sawing, planing, turning, shaping and carving machines:

sets up and operates woodworking machines to cut and shape wood, performing tasks of specialised woodworking-machine setter-operators, as described in definitions below.

8-12.20 Precision Sawyer.

Sets and operates sawing machine which cuts stock lumber to standard or desired shape:

marks outline of article to be made on surface of wood; sets saw and adjusts or inserts end stops and gauges on table to desired length and width; passes wood into machine, regulating direction and speed of saw along outline; removes cut wood from table.

May specialise in type of saw used and be designated accordingly.

8-12.30 Wood Turner.

Shapes pieces of wood rotating in a lathe, using hand tools:

marks centre points on ends of parts to be cut; fixes wood in lathe and selects cutting tools; presses appropriate hand tools against the surface of rotating piece and shapes it according to drawings, specifications or own design; smooths piece with abrasives; checks shape with measuring instruments and removes piece from lathe.

8-12.40 Wood-Lathe Setter-Operator.

Sets and operates automatic lathe which turns wooden articles from stock:

studies drawing; selects and fixes appropriate cutters and guides in machine and aligns them to approximate position; places stock in position between centres or in chuck; sees that shaping proceeds correctly; checks first piece by comparing it with drawing; readjusts cutters as necessary and continues shaping; removes turned piece from machine.

May specialise in type of machine used and be designated accordingly.

8-12.50 Wood-Shaping-Machine Setter-Operator.

Sets and operates machine which cuts designs of irregular shape in the surface of straight, curved or irregular pieces of wood:

selects cutting tools and fixes them in place; clamps a straight or curved guide to machine table; feeds stock to rotating cutters, pressing it firmly against guide; removes completed work from machine.

May shape stock, without using guide, by manipulating it against cutters or by passing stock between sets of cutters.

8-12.60 Wood-Routing-Machine Setter-Operator.

Sets and operates machine which cuts depressions or designs of various shapes on wood:

clamps and tightens selected bit in chuck of machine; inserts guide pin in table and places jig in position; adjusts table for depth of cut and sets table stops; clamps stock in place on jig or fastens part securely to movable table; moves table horizontally or vertically and feeds stock into rotating bit or moves jig in horizontal position around pin and under bit to cut design.

May work from drawings or sketches, operate machine equipped with automatic device for varying depth of cut, or make jigs for repetitive production.

8-12.70 Wood-Planing-Machine Setter-Operator.

Sets and operates single or multiple cutting machine which planes surfaces and reduces thickness of wooden stock:

selects knives and fits them into cutter head; turns handwheel to adjust table for depth of cut and to thickness of unplaned stock; adjusts pressure bar to hold stock firmly against knives; inserts one end of stock between feed rolls and guides it through machine; measures planed stock and makes necessary adjustments; resets machine, turns stock over and repeats process if necessary; replaces dull or broken blades.

May specialise in type of machine used and be designated accordingly.

8-12.80 Wood-Spindle Carving-Machine Setter-Operator.

Sets and operates machine which carves artistic and decorative designs on surface of pieces of wood:

studies drawing; selects appropriate cutter and attaches it to spindle; holds and manipulates piece against cutter to produce desired design.

May draw or trace outline of design on wood. May operate copying machine which automatically reproduces standard design on wood pieces.

8-12.90 Other Woodworking-Machine Operators.

This group includes woodworking-machine operators not elsewhere classified, for example those who operate mortising, universal and sanding machines.

8-19 Cabinetmakers and Related Woodworkers Not Elsewhere Classified

Workers in this unit group perform various woodworking tasks which are not performed by those classified elsewhere.

Their functions include:

making and repairing wooden vehicles or parts of wooden vehicles;

making and repairing articles of wood, such as patterns, scale models and mock-ups, casks or smoking pipes;

decorating furniture and fixtures by inlaying wood, applying veneer and carving designs;

finishing surfaces of wooden articles of furniture;

performing other woodworking tasks, such as marking wood to indicate where it must be cut or shaped; making wooden sports equipment or shoes; and bending wood in steam.

8-19.20 Coach-Body Builder.

Constructs and repairs wooden bodies of vehicles, using hand and power tools:

studies drawings or other specifications; builds framework, lining, floors and other wooden parts; fits and assembles various parts of vehicle on chassis; repairs decayed or damaged wooden parts of vehicle body.

May attach interior fittings, install glazing and repair or replace fabric tops. May specialise in type of coach body made and be designated accordingly.

8-19.25 Cartwright.

Constructs and repairs wooden carts, wagons and wheels, using hand and power tools:

cuts and shapes wood for body or to form hubs, spokes and wheel rims according to drawings or other specifications; bolts, screws or nails wooden parts together; reinforces cart and wagon body with braces and brackets and shrinks iron tire into rim of wheel or fits rubber tire; shapes axles and fixes them to body and mounts wheels; repairs or replaces worn or damaged parts.

May paint wooden wagons and wheels. May specialise in making and repairing wooden wheels.

8-19.30 Cooper.

Makes or repairs wooden casks for holding wet or dry goods, using hand or power tools:

prepares staves by sawing, planing, bending and jointing; assembles staves into desired shape and draws together and levels ends; places and tightens temporary hoops on partly assembled cask and steams it to make wood pliable; bores, reams and countersinks bunghole in a stave; cuts grooves in staves for croze and trims ends; makes cask heads by sawing, rounding, trimming and assembling blanks; fits heads into croze and presses staves around them; prepares and shapes wooden or metal riveted hoops to precise fit; removes temporary hoops from cask and replaces them by forcing permanent ones on it; smooths and finishes surface of cask; repairs defective casks by replacing broken staves, heads and hoops and by closing leaking joints.

May coat interior of cask to prevent leakage and contact of liquid with wood and test cask for tightness of joints. May construct or repair circular wooden tanks for storing liquids.

8-19.35 Wooden Pattern Maker.

Constructs wooden patterns, using hand or power tools:

studies drawings and specifications and lays out pattern on wood stock; shapes parts by sawing, planing, chiselling and turning; fits and fastens parts together, using glue, nails and screws; trims and smooths patterns; repairs broken or damaged patterns.

May construct wooden patterns used in forming sand moulds for metal casting.

8-19.40 Wooden Model Maker.

Constructs to scale wooden reproductions of objects such as buildings, ships and aircraft, and constructs full-size models (mock-ups) of smaller objects, such as mechanical appliances, using hand or power tools:

studies drawings or other specifications; selects and marks off materials; shapes parts by operations such as cutting, planing and turning; assembles and fits parts by gluing, nailing and screwing; checks measurements with calipers, rules and other instruments.

May carve model.

8-19.45 Wood Carver.

Carves designs in wood for furniture, screens, panelling and other uses, using hand tools:

studies design required, or sketches own design; makes full-size pattern and marks out design on wood; clamps piece to work bench and cuts away wood along traced lines to make first cut; trims first cut with chisels and gouges to complete the design; touches up and finishes carving with appropriate tools.

8-19.50 Veneer Applier.

Faces parts of wooden furniture with veneer:

selects from stock veneers with matching grain; cuts pieces to required shapes and dimensions by hand or power tools; glues veneer on surface of furniture parts; places the glued piece under pressure and removes it when glue has set.

8-19.55 Wooden Furniture Finisher.

Finishes or refinishes surface of wooden furniture and fittings:

prepares surface by filling cracks and nicks and smoothing it; applies coats of stain, sealer, filler, lacquer, varnish or other finishing materials to surface; smooths surface between coats and rubs down final coat to desired finish; repairs defects in the finish of completed article; removes old finish before refinishing wooden furniture and fittings.

May apply decorative designs to furniture.

8-19.60 Smoking-Pipe Maker.

Makes smoking pipes and cigar and cigarette holders in wood and kindred materials, using hand or power tools:

selects materials to be used; cuts and shapes stem and mouthpiece and inside and outside of bowl; drills stem and mouthpiece; fits stem into mouthpiece and checks it for alignment; completes final shape of bowl and stem by filing; removes turning and filing marks from stem, mouthpiece and bowl and polishes them before staining; stains bowl and stem and gives final exterior finish.

May make stem and mouthpiece in one piece, carve bowl, or repair pipes or holders by replacing burnt or cracked bowl or fitting new mouthpiece.

8-19.65 Marquetry Inlayer.

Prepares and inlays ornamental wood to form decorative designs in furniture:

traces on wood, from prepared designs, outlines of shapes to be inlaid; shapes inlay pieces with band saw or knife; cuts surrounds to receive inlays; applies adhesive substance, inserts shapes according to design, allows marquetry to set and smooths surface.

May use materials other than wood, work on articles other than furniture, and sharpen tools.

8-19.90 Other Cabinetmakers and Related Woodworkers.

This group includes other cabinetmakers and related woodworkers not elsewhere classified, for example those marking wood to indicate where it must be cut or shaped; making wooden sports goods, such as skis, tennis racquets, hockey sticks and gymnastic apparatus; making coffins; making wooden shoes; bending wooden parts in steam by hand or machine; assembling wooden products.

8-2 STONE CUTTERS AND CARVERS

Workers in this minor group cut and shape stone for building, monumental and ornamental purposes. They are classified in the unit group mentioned below:

8-20 Stone Cutters and Carvers.

Sculptor is classified in 1-61.20; *Marble setter* and *Stonemason* are classified in 9-51; *Stone splitter* working at quarry site in 7-12.20; and *Lithographic stone engraver* in 9-24.15.

8-20 Stone Cutters and Carvers

Workers in this unit group cut, shape and finish granite, limestone, marble, sandstone and other stones for building, ornamental, monumental and other purposes.

Their functions include:

setting and operating machines which cut, saw, plane, grind and polish building and monumental stone;

selecting and grading blocks of stone;

making patterns and marking shapes on stone for subsequent sawing, planing, drilling and other dressing and cutting operations;

setting and operating lathes to cut and polish stone columns, pillars and other cylindrical shapes;

cutting incised or raised numbers or letters on stones;

carving figures or designs in relief on blocks or slabs of stone;

carving simple designs on stone blocks used for monuments, memorials or decorative facings on buildings;

performing various other tasks related to the foregoing.

8-20.20 Stone Cutter and Finisher.

Sets and operates machines which cut, saw, plane, grind and polish building and monumental stone, performing any one or combination of the following tasks:

cuts and shapes building and monumental stone such as granite, marble and freestone, from rough blocks or slabs using power and hand tools; saws large, rough blocks of building and monumental stone into slabs or smaller blocks with machine saw; shapes and smooths surfaces of blocks or slabs of stone on stone planer; smooths rough-sawn surfaces of stone blocks or slabs on a grinding machine preparatory to polishing; polishes surfaces of blocks or slabs of stone, such as marble or granite, to lustrous finish by machine.

8-20.30 Stone Grader.

Selects blocks of granite, marble or other stone according to order specifications:

studies order specifications; examines stock in yard and selects blocks, making choice through knowledge of colour and quality of standard grading samples; orders from quarry if type and quality of stone required is not in stock; makes preliminary marking on blocks to guide cutting.

8-20.40 Stonework Layout Man.

Makes patterns and marks shapes on stone for subsequent sawing, planing, drilling and other dressing and cutting operations:

marks off pattern on sheet metal according to specifications; cuts pattern into sections and marks these for identification; measures blocks and marks them for most economical cut, using rule, straight-edge and crayon; lays pattern on stone, centres it, and traces outline on surface.

May design layout and cut stencils to be applied to the face of monumental stones preparatory to sandblasting.

8-20.50 Stone Lathe Operator.

Sets and operates lathes to cut and polish stone columns, pillars and other cylindrical shapes:

directs mounting of stone between centres of lathe which support and rotate stone during cutting or polishing operations; mounts and adjusts cutting tool or grinding and polishing wheels on machine carriage and starts machine to rotate stone; opens valve to supply cooling water for cutting tool or polishing wheel and moves carriage against and along rotating stone; measures stone frequently during cutting or polishing operation to obtain or maintain desired dimensions; directs removal of stone from lathe.

May cut designs in stone, using special tools. May operate particular kind of lathe and be designated accordingly.

8-20.60 Stone Letter Cutter (Hand).

Cuts incised or raised numbers or letters on stones with pneumatic and other hand tools:

places or directs placing of stone in working position; pastes paper bearing the letters, or traces pattern of letters, on stone surface; outlines tracing in stone with small pneumatic hammer and chisel; roughs out incised tracing or cuts away background of raised tracing; shapes and finishes letters to exact outline, using small chisels and mallet.

May paint or gild incised lettering or fill with lead by hammering.

8-20.70 Stone Carver (Hand).

Carves figures or designs in relief on blocks or slabs of stone with pneumatic and other hand tools:

lays out figure or design on stone surface by freehand sketching, with drawing instruments, by means of tracing paper or by taking measurements from model; carves work roughly along outline with pneumatic hammer and cutting chisels of various shapes; carves work to final shape with smaller pneumatic hammer and finishing chisels or with mallet and hand chisel; checks work frequently against specifications or model; finishes surface with a rubbing stone.

May carve numbers and letters and create own designs.

8-20.80 Monument Carver-Setter.

Carves out simple designs on stone blocks used for monuments, memorials or decorative facings on buildings, and sets stones in the erection of monuments and memorials:

marks off designs on stone surface with drafting instruments and by means of pattern or tracing paper; chisels narrow groove along lines of marking and cuts unwanted stone away roughly to desired depth, using pneumatic and other hand tools; levels and smooths new surface; carves design to final shape and smoothness with finishing tools; sets stone in the erection of monuments and memorials, aligning and levelling stone and finishing joints using mortar and trowel.

May cut letters on stones.

8-20.90 Other Stone Cutters and Carvers.

This group includes stone cutters and carvers not elsewhere classified, for example those who specialise in cutting lettering and designs on stones by directing a blast of sand or shot against surfaces left exposed by a stencil on the stone face; operating machines with specially shaped abrasive wheels for cutting mouldings, grooves, panels and other decorative designs in stone blocks; polishing curved and irregular surfaces of blocks or slabs of stone to a lustrous finish by hand; drilling holes in finished slabs and blocks of building stone for insertion of wires or rods for mounting and fastening purposes.

8-3 BLACKSMITHS, TOOLMAKERS AND MACHINE-TOOL OPERATORS

Workers in this minor group hammer and forge metal by hand or machine, make tools, dies, patterns and other metal articles, using hand and machine tools, set up metal-cutting machine tools, operate machine tools set up for repetitive work, grind, and sharpen tools and perform various metalworking tasks not performed by workers classified elsewhere. They are classified in the unit groups listed below:

8-31 Blacksmiths, Hammersmiths and Forging-Press Operators.

8-32 Toolmakers, Metal Patternmakers and Metal Markers.

8-33 Machine-Tool Setter-Operators.

8-34 Machine-Tool Operators.

8-35 Metal Grinders, Polishers and Tool Sharpeners.

8-39 Blacksmiths, Toolmakers and Machine-Tool Operators Not Elsewhere Classified.

Machinery fitters and machine assemblers are classified in unit group 8-41; *Precision instrument makers* in 8-42; *Electrical fitters* in 8-51; and *Electronics fitters* in 8-52.

8-31 Blacksmiths, Hammersmiths and Forging-Press Operators

Workers in this unit group hammer and forge bars, rods, ingots and plates of iron, steel or other metal to make various kinds of tools, metal articles, pieces of equipment, agricultural implements and shoes for use on animals.

Their functions include:

heating metal in forge-furnace and fabricating and repairing articles by cutting, hammering metal on an anvil, punching, shearing, joining and hardening or tempering;

shaping heated metal into forgings on power hammer equipped with open dies;

operating closed-die drop-hammer to forge metal articles;

operating a power-press machine equipped with closed dies to forge metal articles;

performing other tasks related to blacksmithing, hammersmithing and power-press forging.

8-31.10 Blacksmith (General).

Forges and repairs articles of iron and steel, such as hand tools, hooks, chains, agricultural implements and metal structural parts, using hand or power hammers:

selects metal and heats it in a small furnace; places metal on anvil and shapes it by hammering, cutting and punching; reheats parts, adds flux, and joins them by hammering; hardens and tempers metal pieces or articles; repairs metal articles by forging.

May specialise in type of work done, for example making and repairing agricultural implements, ornamental ironwork, dies and edged tools such as chisels, axes and scythes; repairing mine and quarry equipment and tools; making and fitting shoes to animals or making link chains, and be designated accordingly.

8-31.20 Hammersmith.

Shapes heated metal into forgings on power hammer equipped with open dies:

installs and aligns dies on ram and anvil of machine; observes colour of metal in furnace to determine if metal has reached forging temperature; directs removal of metal from furnace and positioning of metal on anvil of machine; starts machine and regulates action of hammer or signals helper to manipulate hammer controls; varies length and force of hammer stroke according to type of metal or nature of article being forged; measures forging to ensure that it conforms with work order, diagram or other specifications.

May forge cold metal.

8-31.30 Drop-Hammer Operator.

Operates closed-die drop-hammer to forge metal articles:

installs and aligns dies on ram and anvil of machine using scale, rule, square, feelers, shims and hand tools; directs removal of heated workpiece from furnace; positions workpiece on lower die and moves controls causing ram to strike metal repeatedly, forcing it to shape of die impressions; moves workpiece through series of dies to attain progressively finer detail.

May forge cold metal.

8-31.40 Forging-Press Operator.

Operates a power-press machine equipped with closed dies to forge metal articles:

installs and aligns dies on ram and anvil of press using gauges, feelers, shims and hand tools; sets controls to specified pressure and depth of ram stroke; removes metal from furnace when colour indicates it has reached proper forging temperature; positions metal on lower die and moves control to lower ram that compresses metal to shape of die impressions.

8-31.90 Other Blacksmiths, Hammersmiths and Forging-Press Operators.

This group includes blacksmiths, hammersmiths and forging-press operators not classified elsewhere, for example those hammering, cutting, shaping and punching metal pieces as directed by blacksmith; starting and stopping power hammers on instructions of blacksmith or hammersmith; adjusting pressure of forging press on instructions of forging-press operator.

8-32 Toolmakers, Metal Pattern Makers and Metal Markers

Workers in this unit group make tools, dies, patterns and other metal articles, using hand and machine tools to work metal to fine tolerances.

Their functions include:

making, maintaining and repairing dies, jigs, gauges and fixtures, using hand tools and various kinds of machine tools;

fitting and assembling parts to make and repair jigs, fixtures and gauges;

making and repairing metal patterns for preparation of foundry moulds;

laying out lines and reference points on metal stock to guide other workers who cut, turn, mill, grind or otherwise shape metal;

performing other tasks related to the manufacture of tools, dies and patterns.

Workers making metal patterns by moulding and casting processes are classified in minor group 7-2.

8-32.20 Tool and Die Maker.

Fits and assembles parts to make and repair metalworking dies, cutting tools, jigs, fixtures, gauges, and machinists' hand tools:

studies drawings, models and other specifications, computes dimensions, plans layout and assembly operations; measures and marks metal stock for machining; sets and operates machine tools to cut, turn, mill, grind or otherwise shape metal to prescribed dimensions; assembles parts and verifies dimensions, alignments and clearances, using dial indicators, gauge blocks, thickness gauges and micrometers; heat treats tools or parts; dismantles worn or defective tools, dies, and fixtures and repairs or replaces parts.

May design tools, jigs and other fixtures and braze or weld parts. May specialise in making dies for forging, stamping, die-casting and wire drawing, or moulds for injection or compression moulding of plastic products, and be designated accordingly.

8-32.30 Jig and Gauge Maker.

Lays out, fits and assembles parts to make and repair jigs, fixtures and gauges:

studies drawings and other specifications to plan layout and assembly procedures; measures and marks metal stock for machining; sets and operates machines to cut, drill or otherwise shape metal stock; assembles parts using hand tools and verifies dimensions and alignments using measuring instruments.

8-32.40 Metal Pattern Maker (Foundry).

Makes and repairs metal patterns used in making foundry moulds:

studies drawings and other specifications of pattern; selects metal of approximately the size required and marks it for machining; grinds, smooths and otherwise shapes metal to required dimensions with machine or hand tools; assembles pattern parts by screwing, soldering or other methods and verifies dimensions, alignments and clearances using measuring instruments; tests completed pattern for accuracy and makes necessary alterations; repairs broken or damaged patterns.

8-32.50 Metal Marker.

Lays out lines and reference points on metal stock to guide workers who cut, turn, mill, grind or otherwise shape metal:

studies drawings and other specifications and plans layout; examines workpiece and establishes reference points and computes layout dimensions, using measuring instruments such as rulers, squares, gauges and micrometers; indents reference points with centre punch and hammer and marks layout lines, using surface gauge, straight-edge, compass, templates.

May coat surface of metal with chalk, paint or similar material prior to marking.

Sheet-metal marker is classified in 8-73.20 and *Structural metal marker* in 8-74.20.

8-32.90 Other Toolmakers, Metal Patternmakers and Metal Markers.

This group includes toolmakers, metal patternmakers and metal markers not elsewhere classified, for example those who set industrial diamonds in grinding tools or in diamond-pointed cutting tools.

8-33 Machine-Tool Setter-Operators

Workers in this unit group set, or set and operate, metal-cutting machines working to fine tolerances.

Their functions include:

setting up one or more types of machine tools for operators to produce metal articles in standardised series;

setting and operating a variety of machine tools;

setting and operating a particular type of metalworking machine such as a lathe, milling, planing, boring, drilling, grinding or honing machine, including multi-purpose numerically controlled metalworking machines;

performing similar tasks in machining of plastics and other metal substitutes.

8-33.05 Metalworking Machine Setter (General).

Sets up various types of power-driven precision metal-cutting machines for machine operators:

examines drawings and other specifications and determines sequence of operations to be carried out; measures and marks necessary reference points; fastens cutting tool(s) in position on machine, using chucks, jigs and other fixtures as required; adjusts machine table, guides, stops and other controls to ensure tool(s) will cut or grind metal according to specifications; selects speed for rotary or other movement of workpiece or of cutting tool(s); starts and operates machine to obtain sample; checks work with measuring instruments and makes necessary adjustments to machine setting; changes tools and resets machine for operator as necessary.

8-33.10 Metalworking Machine Setter-Operator (General).

Sets up and operates a variety of power-driven precision metal-cutting machines:

sets up a variety of machine tools, such as lathes, milling, planing and boring machines as described under *Metalworking machine setter (general) (8-33.05)* and operates different machines, according to the work to be done, as described in the relevant definitions in unit group 8-34.

8-33.20 Lathe Setter-Operator.

Sets up and operates a power-driven metalworking lathe:

examines drawings and specifications of part to be made; fastens metal and tools in position on lathe using chucks, jigs and other fixtures as required; adjusts guides and stops; sets rotation speed of metal and starts machine; manipulates hand wheels, or sets and starts automatic controls, to guide cutting tool into or along metal; controls flow of lubricant on edges of tools; checks progress of cutting with measuring instruments and makes necessary adjustments to machine setting.

May specialise in a particular type of lathe and be designated accordingly.

8-33.30 Milling-Machine Setter-Operator.

Sets up and operates a power-driven machine which cuts metal with a multi-toothed rotary cutter:

examines drawings and other specifications of part to be made; fastens metal on machine table with bolts, clamps or other fixtures; selects and fits rotary cutter to machine; selects rotation speed of cutter and starts machine; manipulates handwheels, or sets and starts automatic controls, to feed cutter to metal or metal to cutter; controls flow of lubricant on cutter; changes cutter and position of metal as required; checks progress of cutting with measuring instruments and makes necessary adjustments to machine setting.

May lay out lines and reference points on metal prior to cutting. May specialise in a particular type of milling machine and be designated accordingly.

8-33.40 Planing-Machine Setter-Operator.

Sets up and operates a power-driven machine in which a cutting tool is guided into metal fixed to a reciprocating table:

examines drawings and other specifications of part to be made; fastens metal in position on machine table with bolts, clamps or other fixtures; selects cutting tool and fixes it to machine; adjusts guides, stops and controls to determine speed and limits of table movement; starts machine and manipulates handwheels, or sets and starts automatic controls, to guide tool into and across metal; checks cutting with measuring instruments and makes necessary adjustments to machine setting.

May lay out lines and reference points on metal prior to cutting. May specialise in a particular type of planing machine and be designated accordingly.

8-33.50 Boring-Machine Setter-Operator.

Sets up and operates a power-driven machine in which cylindrical holes in metal objects are aligned and enlarged by a rotating cutting tool:

examines drawings and other specifications of part to be made; fastens metal in position on machine table, using jigs and other fixtures as required; selects and installs cutting tool(s) in machine spindle(s); adjusts machine table, guides, stops and other controls; selects rotation speed of tool and starts machine; manipulates handwheels, or sets and starts automatic controls, to feed tool into metal; controls flow of lubricant to tool; checks progress of cutting with measuring instruments and makes necessary adjustments to machine setting.

May drill holes prior to boring and sharpen tools. May specialise in a particular type of boring machine and be designated accordingly.

8-33.60 Drilling-Machine Setter-Operator.

Sets up and operates a power-driven machine which drills and reams holes in metal:

examines drawings and other specifications; selects drill or reamer and fixes it in machine chuck; fastens metal in position on table, using jigs and other fixtures as required; adjusts guides and stops; selects rotation speed of tool and starts machine; moves lever to feed tool into workpiece, or sets and starts automatic controls, to guide tool into metal; controls flow of lubricant on edge of tool; changes drill or reamer and position of metal as required; checks progress of cutting and makes necessary adjustments to machine setting.

May specialise in a particular type of drilling machine and be designated accordingly.

8-33.70 Precision-Grinding-Machine Setter-Operator.

Sets up and operates a power-driven machine which grinds and smooths metal surfaces to close tolerances with a grinding wheel:

examines drawings and specifications of part to be made; fastens metal on machine using chucks, clamps, jigs, fixtures or places it in position on magnetic table; selects grinding wheel and fixes it to machine; adjusts machine table, guides, stops and other controls to determine direction and limit of grinding wheel movements; selects rotation speed of wheel and starts machine; manipulates handwheels, or sets automatic controls, to regulate grinding; changes grinding wheel and position of metal as required; checks progress of grinding with measuring instruments and makes necessary adjustments to machine setting.

May specialise in a particular type of precision-grinding machine and be designated accordingly.

8-33.80 Honing-Machine Setter-Operator.

Sets and operates vertical or horizontal honing machine to hone internal or external surfaces of metal objects:

positions and secures workpiece on machine table, using squares, rules, micrometer and hand tools; installs specified tool in machine spindle; sets tool-feed rate and spindle speed; sets stops to control length of stroke and depth of cut; starts machine and turns handwheels or engages automatic mechanism to feed and oscillate tool along workpiece; turns valve handle to regulate and direct flow of coolant against tool and workpiece; measures honed workpiece for conformance to specifications using preset gauges and micrometers.

8-33.85 Numerical-Control-Machine Setter-Operator.

Sets up and operates magnetic or punched-tape-controlled machine tools that automatically mill, drill, broach and ream metal parts:

bolts fixture to machine bed and positions metal on fixture; assembles cutting tools in tool-holder and positions tools in machine spindles; places control tape in reading magazine; turns index of cutting tool dials to specified set point, turns switches to operating position and starts machine; changes cutting tools, location of clamps and repositions metal on fixture as required; observes machine operation, checks accuracy of machining against drawings or other specifications and reports programming inaccuracies.

May adjust machine feed and speed when automatic programming is faulty or if machine malfunctions.

8-33.90 Other Machine-Tool Setter-Operators.

This group includes machine-tool setter-operators who are not classified elsewhere, for example those who set and operate shaping machines or machine tools effecting several different types of metal cutting.

8-34 Machine-Tool Operators

Workers in this unit group operate automatic or semi-automatic metalworking machines which have been set up by machine setters to execute repetitive work.

Their functions include:

operating and tending a variety of machine tools;

operating a machine tool such as a lathe, milling, planing, boring, drilling, grinding, honing or metal-sawing machine;

operating a special type of machine tool such as automatic transfer machine or programmed metalworking machine.

8-34.10 Machine-Tool Operator (General).

Operates various types of automatic or semi-automatic power-driven metal-cutting, boring and grinding machines which have been set up for repetitive work:

fastens metal in chuck, jig or other fixture on machine; starts machine and, if the action is not completely automatic, manipulates handwheels to feed tool to metal or metal to tool; observes progress of cutting, and stops machine and calls machine setter in the event of a malfunction; stops machine when cutting is completed (if the machine is not fully automatic) and withdraws part; checks accuracy of work with measuring instruments; cleans and oils machine.

8-34.20 Lathe Operator.

Operates a power-driven metal-cutting lathe set up for repetitive work:

performs tasks similar to those of *Machine-tool operator (general) (8-34.10)* but operates an automatic or semi-automatic lathe.

May be designated according to type of lathe operated or kind of parts made.

8-34.30 Milling-Machine Operator.

Operates a power-driven machine which cuts metal with a multi-toothed rotary cutter and has been set up for repetitive work:

performs tasks similar to those of *Machine-tool operator (general) (8-34.10)* but operates an automatic or semi-automatic milling machine.

May be designated according to type of milling machine operated.

8-34.40 Planing-Machine Operator.

Operates a power-driven planing machine which planes metal fixed to a reciprocating table and has been set up for repetitive work:

performs tasks similar to those of *Machine-tool operator (general) (8-34.10)* but operates an automatic or semi-automatic planing machine.

May be designated according to type of planing machine operated.

8-34.50 Boring-Machine Operator.

Operates a power-driven machine set up for repetitive work, in which cylindrical holes in metal parts are aligned and enlarged to required size by a rotating cutting tool:

performs tasks similar to those of *Machine-tool operator (general) (8-34.10)* but operates an automatic or semi-automatic boring machine.

May be designated according to type of boring machine operated.

8-34.60 Drilling-Machine Operator.

Operates a power-driven machine, set up for repetitive work, to drill or ream single or multiple holes in metal:

performs tasks similar to those of *Machine-tool operator (general) (8-34.10)* but operates an automatic or semi-automatic drilling machine.

May be designated according to type of drilling machine operated.

8-34.65 Precision-Grinding-Machine Operator.

Operates a power-driven precision metal-grinding machine, set up for repetitive work:

performs tasks similar to those of *Machine-tool operator (general) (8-34.10)* but operates an automatic or semi-automatic precision-grinding machine.

May be designated according to type of precision-grinding machine operated.

8-34.70 Honing-Machine Operator.

Operates previously set up honing machine to hone internal and external surfaces of metal parts, such as cylinders, bearings or connecting rods:

performs tasks similar to those of *Machine-tool operator (general) (8-34.10)* but operates an automatic or semi-automatic honing machine.

8-34.75 Metal-Sawing-Machine Operator.

Operates a power-driven saw, such as hacksaw, bandsaw or friction saw to cut straight, curved or irregular shaped parts from metal:

studies work order for specifications, such as material, type and size of stock, and dimensions to be cut; measures metal and marks line of cut with chalk or scriber; positions stock on machine and selects and installs appropriate saw blade for work to be performed; sets guides, stops and saw blade tension; starts machine and guides stock into blade.

May turn valves to direct compressed air to clear cutting area or direct flow of coolant against blade and workpiece.

8-34.80 Automatic Transfer-Machine Operator.

Operates transfer machine consisting of series of machines connected by mechanism that automatically transfers workpieces and performs series of machining operations, such as drilling, boring, tapping, and milling:

lifts workpiece and places it on holding device; pushes holding device along track into clamping station, and starts mechanism to clamp workpiece and transfer it to work stations; inspects machined workpieces for defects and accuracy, using measuring instruments; changes tools when required; moves derailed holding device back into position; reports machine failure or serious malfunction to supervisor.

8-34.90 Other Machine-Tool Operators.

This group includes machine-tool operators not classified elsewhere, for example those who operate shaping machines, gear hobbing machines or tend machine automatically controlled by magnetic or punched tape programmes.

8-35 Metal Grinders, Polishers and Tool Sharpeners

Workers in this unit group grind and polish metal surfaces and sharpen tools.

Their functions include:

operating stationary or portable buffing and polishing machines;

sharpening cutting tools using mechanically operated grinding machine;

sharpening cutting instruments, such as knives and surgical implements, by means of grinding wheel;

repairing, adjusting and sharpening saw blades;

sharpening metal teeth of cylinders in textile carding machines;

performing various other metal grinding, polishing and tool sharpening tasks.

Precision-grinding-machine setter-operator is classified in 8-33.70 and *Precision-grinding-machine operator* in 8-34.65.

8-35.20 Buffing- and Polishing-Machine Operator.

Operates a fixed or portable machine for buffing and polishing metal:

selects and attaches appropriate buffing or polishing wheel to machine; applies wax or other dressing to wheel if required; starts machine and holds metal at various angles against rotating wheel to remove surface blemishes and obtain even finish; changes wheel as necessary.

May finish work by hand. May clean objects in chemical bath before polishing.

8-35.30 Tool Grinder, Machine Tools.

Sharpens cutting tools used in metalworking, woodworking and other machines by means of a power-operated grinding wheel:

mounts cutting tool in fixture on grinding machine; sets fixture so that cutting edge of tool will be ground at correct bevel; starts grinding wheel; brings grinding wheel and edge of tool into contact and sees that grinding is proceeding correctly; stops machine and removes tool when grinding is completed; changes grinding wheels and position of tool as required.

May give final finish to cutting edge by hand. May work to close tolerances and use precision measuring instruments.

8-35.40 Cutting Instruments Sharpener.

Sharpens knives, surgical instruments and other cutting instruments (except machine tools) by means of grinding wheel:

selects grinding wheel and fixes it in position; starts grinding wheel and holds edge of instrument against it; observes and checks grinding, moving instrument as necessary to obtain required cutting edge; removes burrs from ground edge with whetstone.

May temper sharpened instruments.

8-35.50 Saw Repairer and Sharpener.

Repairs, sets and sharpens hand, circular and band-saws:

cuts broken teeth from band-saws by shearing out section of blade; joins ends of band-saws by bevelling ends and welding or brazing them together; brazes or welds cracks in saw blades; removes dents, twists and kinks in blades by hammering; sets teeth at correct angle for cutting, using hammer and swage or special pliers; clamps saw blade in sharpening machine; sets and starts machine so that each saw tooth is ground in turn; removes sharpened blade and gives final finish with hand tools.

May trim circumference from damaged circular saws and cut new teeth. May sharpen saws by hand.

8-35.60 Textile Card Grinder.

Repairs and sharpens the metal teeth of textile carding machines:

discovers, removes and cleans damaged teeth; chooses emery wheel and fixes it in machine; starts machine and sees that sharpening is correctly carried out; stops machine and withdraws teeth when operation is finished.

May carry out operation without removing teeth needing repair by attaching emery wheel to carding machine. May work with hand tools. May maintain carding machine.

8-35.90 Other Metal Grinders, Polishers and Tool Sharpeners.

This group includes metal grinders, polishers and tool sharpeners not elsewhere classified, for example those who operate machines for straightening and grinding toothed wheels; operate lapping machines to lap surfaces of metal objects; polish metal by hand, and sharpen knives and scissors in the street on portable machines.

8-39 Blacksmiths, Toolmakers and Machine-Tool Operators Not Elsewhere Classified

Workers in this unit group perform various metalworking tasks not performed by workers classified elsewhere.

Their functions include:

adjusting, repairing and assembling sports guns and other small arms and locks;

operating a lathe to press sheet metal into a desired shape;

forming cold or heated metal pieces using hand tools, chucks and forming blocks;

operating cutting, punching and stamping presses, metal-bending machines, power shears and other machines or equipment to cut or form metal;

making metal articles such as springs, cables, nails, bolts and steel needles.

8-39.20 Gunsmith.

Repairs and modifies sports guns and other small arms according to customers' specifications:

checks parts of gun such as barrel, firing mechanism, sights and stock for accuracy of fit; chisels, files, scrapes and does other supplementary tooling to correct inaccuracies; assembles parts, attaches and adjusts sights, and tests completed gun; replaces or repairs broken or worn parts; rebores barrels on boring machine to enlarge calibre and operates broaching machine to cut rifling in barrel of small arms.

May make parts for guns.

8-39.30 Locksmith.

Assembles, installs and repairs locks:

examines lock parts to check accuracy of fit; chisels, files, scrapes and does other supplementary tooling to correct inaccuracies; assembles parts and tests completed lock; dismantles defective locks and repairs or replaces damaged parts; changes lock combinations by making adjustments or inserting new tumblers; makes new or duplicate keys; opens jammed locks.

May make lock parts. May install locks.

8-39.40 Metal Spinner.

Rotates sheet-metal discs on a special machine (lathe) and presses hand tools against discs to shape them:

fixes to lathe spindle the chuck or the mould of part to be made; selects sheet-metal disc, coats it with wax and clamps it to chuck; starts machine to rotate disc; presses tool against disc by hand to force it to shape; smooths and trims spun part with hand tools; removes completed part from machine.

May measure, mark and cut out discs from sheet-metal stock and drill holes in discs prior to fitting them in lathe.

8-39.50 Metal Former (Hand).

Trims, bends and shapes sheet metal and metal rods using hand tools, chucks and forming blocks:

examines drawings and specifications of article to be made; marks reference points on material and forming block; fixes to forming block dies and other accessories determining the outline of articles to be made; heats material if necessary, places it on forming block and secures it with clamps; obtains desired shape by using mallet, hammer or pneumatic hammer, reheating metal if necessary; checks accuracy of work by gauge or other measuring instruments.

May also use folding, punching, bending-roll and flanging-roll machines. May specialise in forming a particular type of article and be designated accordingly.

8-39.60 Metal-Press Operator.

Operates a power press (other than a forging press or steel-plate-bending machine) in which dies, punches or other tools trim, punch, shape, notch or otherwise shape metal stock:

places metal against stops and guides on stationary die or machine bed to align it with machine tool; operates security device if necessary and sets press in motion for single or repetitive operations; releases pressure and removes metal; checks accuracy of pieces made, using gauges and other measuring instruments.

May periodically oil tool or metal being shaped. May set machine, change tools, make minor adjustments and clean and oil press. May operate several automatic presses simultaneously. May be designated according to type of press operated.

Forging-press operator is classified in 8-31.40.

8-39.70 Metal-Bending-Machine Operator.

Bends steel plates or rods to desired curvature by means of a bending machine:

examines drawings and other specifications; marks guidelines on plates; hoists plate or rod to level of machine rollers and inserts between top roller and two lower rollers; manipulates hand wheel or moves lever to lower top roller of machine onto plate; starts machine to cause plate to be drawn between rollers to shape it into an arc; checks curvature of plate, using templates; repeats bending, adjusting rollers as required, until desired curvature is obtained.

May flange edges of plates and straighten distorted plates or bars. May bend plates in a press.

8-39.80 Power-Shear Operator.

Operates a power machine to cut hot or cold metal objects such as slabs, billets, plates, bars, strips and sheets to specified dimensions and angles:

lifts workpiece manually or by hoist or crane to machine bed and positions it against guides and stops; starts machine which clamps workpiece and lowers blade to cut metal.

May operate shear on production line in which shear is fed by conveyor. May assist in setting up machine. May verify work, using measuring instruments. May be designated according to product sheared or type of machine operated.

8-39.90 Other Blacksmiths, Toolmakers and Machine-Tool Operators.

This group includes blacksmiths, toolmakers and machine tool operators not classified elsewhere, for example those making metal articles such as springs, cables, nails, bolts and steel needles.

8-4 MACHINERY FITTERS, MACHINE ASSEMBLERS AND PRECISION-INSTRUMENT MAKERS (EXCEPT ELECTRICAL)

Workers in this minor group assemble, install, service and repair various types of machinery, metal products, engines and mechanical equipment, and make, service and repair watches, clocks and precision instruments (other than electrical). They are classified in the unit groups listed below:

8-41 Machinery Fitters and Machine Assemblers.

8-42 Watch, Clock and Precision Instrument Makers.

8-43 Motor-Vehicle Mechanics.

8-44 Aircraft Engine Mechanics.

8-49 Machinery Fitters, Machine Assemblers and Precision Instrument Makers (except Electrical) Not Elsewhere Classified.

Electrical fitters and related electrical and electronics workers are classified in minor group 8-5.

8-41 Machinery Fitters and Machine Assemblers

Workers in this unit group fit, assemble, erect and install machinery, engines and mechanical equipment, other than electrical equipment.

Their functions include:

fitting, adjusting and assembling machines, engines and other equipment;

erecting and installing machinery at place of use;

performing related tasks.

Motor-vehicle mechanics are classified in unit group 8-43, *Aircraft engine mechanics* in 8-44 and other machinery and engine mechanics in 8-49.

8-41.05 Machinery Fitter (General).

Makes completely parts and subassemblies of machinery and related equipment, according to specifications or by reproducing original components, using machine tools, and fits, assembles and repairs machine parts:

examines drawings and specifications of item to be made or prepares own drawings and specifications from general description, calculates measurements and plans sequence of operations; measures and marks dimensions and reference points on metal stock for machining; sets and operates machine tools to cut and shape metal parts to specifications, verifying work with micrometers, gauges and other measuring instruments; tempers and hardens metal parts, brazes and welds joints and fractures; installs, or repairs and installs, parts of machinery, performing tasks similar to those of *Machinery fitter-assembler (general) (8-41.10)*; inspects new and repaired machines, observing operation and testing with equipment to diagnose malfunction due to faulty parts.

Toolmaker is classified in 8-32.20 and *Jig and gauge maker* in 8-32.30. *Machine-tool setter-operators* are classified in unit group 8-33.

8-41.10 Machinery Fitter-Assembler (General).

Fits and assembles fabricated parts in the manufacture of machinery, engines and other metal apparatus (except precision instruments and electrical equipment):

examines drawings and materials list to obtain parts specifications; plans sequence of operations; examines parts for flaws and checks accuracy of fit using gauges, micrometers and other measuring instruments; chisels, files, scrapes and does other supplementary tooling to ensure correct fit, using equipment such as drilling and grinding machines; lays out, positions, aligns and assembles parts, using hand tools such as wrenches, spanners, screwdrivers, pliers, holding fixtures and other tools and work aids; tests assembled article.

8-41.15 Internal Combustion Engine Fitter-Assembler (except Aircraft and Marine Engines).

Fits and assembles parts in the manufacture of internal combustion engines, except those used for ship or aircraft propulsion:

performs tasks similar to those of *Machinery fitter-assembler (general) (8-41.10)* but specialises in the manufacture of petrol, diesel and other internal combustion engines.

8-41.20 Aircraft Engine Fitter-Assembler.

Fits and assembles parts in the manufacture of aircraft engines:

performs tasks similar to those of *Machinery fitter-assembler (general) (8-41.10)* but specialises in the manufacture of jet, piston, gas-turbine and other types of aircraft engines.

8-41.25 Marine Engine Fitter-Assembler.

Fits and assembles parts in the manufacture of marine engines:

performs tasks similar to those of *Machinery fitter-assembler (general) (8-41.10)* but specialises in the manufacture of steam, petrol, diesel and other types of marine engines.

8-41.30 Turbine Fitter-Assembler (except Aircraft and Marine).

Fits and assembles parts in the manufacture of turbines, excluding those used on ships or aircraft:

performs tasks similar to those of *Machinery fitter-assembler (general) (8-41.10)* but specialises in the manufacture of turbines, other than aircraft and marine turbines.

8-41.35 Metalworking Machine-Tool Fitter-Assembler.

Fits and assembles parts in the manufacture of metalworking machine tools and related equipment:

performs tasks similar to those of *Machinery fitter-assembler (general) (8-41.10)* but specialises in metalworking machine tools such as drilling, boring, milling, precision-grinding and planing machines and lathes.

8-41.40 Mining Machinery Fitter-Assembler.

Fits and assembles parts in the manufacture of mining machinery:

performs tasks similar to those of *Machinery fitter-assembler (general) (8-41.10)* but specialises in the manufacture of drilling, scraping, cutting and other machines used in mining.

8-41.45 Printing Machinery Fitter-Assembler.

Fits and assembles parts in the manufacture of printing machinery:

performs tasks similar to those of *Machinery fitter-assembler (general) (8-41.10)* but specialises in the manufacture of printing machines, such as linotype, monotype, letterpress and lithographic machines.

8-41.50 Textile Machinery Fitter-Assembler.

Fits and assembles parts in the manufacture of textile machinery:

performs tasks similar to those of *Machinery fitter-assembler (general) (8-41.10)* but specialises in the manufacture of textile machines, such as spinning machines, looms, lace-making and hosiery machines.

8-41.55 Woodworking Machinery Fitter-Assembler.

Fits and assembles parts in the manufacture of machines which cut and shape wood:

performs tasks similar to those of *Machinery fitter-assembler (general) (8-41.10)* but specialises in the manufacture of woodworking machines, such as drilling, sawing, planing and shaping machines.

8-41.60 Agricultural Machinery Fitter-Assembler.

Fits and assembles parts in the manufacture of agricultural machinery:

performs tasks similar to those of *Machinery fitter-assembler (general) (8-41.10)* but specialises in the manufacture of agricultural machines, such as cultivating, reaping, threshing and baling machines.

8-41.65 Earth-Moving Equipment Fitter-Assembler.

Fits and assembles parts in the manufacture of earth-moving equipment:

performs tasks similar to those of *Machinery fitter-assembler (general) (8-41.10)* but specialises in the manufacture of earth-moving and related equipment, such as power shovels, bulldozers and scrapers.

8-41.70 Office Machinery Fitter-Assembler.

Fits and assembles mechanical parts in the manufacture of office machinery and equipment:

performs tasks similar to those of *Machinery fitter-assembler (general) (8-41.10)* but specialises in the manufacture of office machines and equipment, such as typewriters, calculating machines, duplicating and copying equipment.

8-41.75 Machinery Erector and Installer.

Erects and installs, in place of use, machinery and other mechanical equipment (except refrigeration and air-conditioning plant):

prepares foundations for heavy machines, checking with various measuring instruments; moves machine or machine parts by means of hoists, rollers, trucks and other aids; places parts in position and builds up machine; aligns machine and shafting or other system of power transmission; checks machine and makes adjustments to ensure efficient operation; shifts machines to new sites in workshop as required.

May service and repair industrial machinery and equipment. May demonstrate and explain functions of machine to users and train workers in its use.

8-41.80 Refrigeration and Air-Conditioning Plant Installer and Mechanic.

Installs and repairs industrial and commercial refrigeration and cooling systems:

lays out reference points for installation of structural and functional components; drills holes in floors and walls and installs mounting brackets and hangers; lifts and aligns components into position; assembles components, such as complete motors, controls, gauges, wiring harnesses, valves, pumps, compressors, condensers, cores and pipes by screwing, bolting, riveting, welding and brazing; starts system, observes operation, reads gauges and instruments, and adjusts mechanism; dismantles malfunctioning systems and tests components to ascertain the nature and location of defects; repairs or adjusts defective or worn parts.

May install wiring to connect components to electric power source.

8-41.85 Airframe Fitter-Assembler.

Fits together and builds up the structural members of the fuselage, tail, wings, undercarriage or other structural parts of aircraft:

positions subassemblies in jigs or fixtures in relation to each other, using measuring instruments such as templates, protractors and dividers, following blueprints and other specifications; assembles airframe parts, doing supplementary tooling where necessary to ensure accurate fit; marks location for rivet holes; drills, reams and countersinks holes in subassembly; bolts, rivets and tack-welds assemblies together.

8-41.90 Other Machinery Fitters and Machine Assemblers.

This group includes machinery fitters and machine assemblers not elsewhere classified, for example those performing tasks in fitting, adjusting and assembling particular types of industrial and other mechanical equipment, which are not performed by workers classified in the preceding groups.

8-42 Watch, Clock and Precision-Instrument Makers

Workers in this unit group make and repair watches, clocks, precision instruments, optical equipment and medical appliances.

Their functions include:

fitting and assembling parts of watches and clocks;

repairing watches and clocks;

making, adjusting and repairing precision instruments;

making, adjusting and repairing optical instruments;

assembling precision instruments;

making and repairing medical, orthopaedic and dental appliances and prostheses;

performing related tasks.

8-42.20 Watch and Clock Assembler.

Fits and assembles parts of watches and clocks:

polishes parts and checks them for accuracy of fit; assembles parts of movement using tweezers, screwdrivers, pliers and other hand tools; checks complete clock or watch movement and regulates it by testing it in various positions, making adjustments if necessary; mounts movement in a case.

May specialise in a particular unit of watch movement or one type of watch and be designated accordingly.

Those who specialise in making electric clocks are classified in *Electrical equipment assembler (8-53.20).*

8-42.25 Watch and Clock Repairer.

Repairs, cleans and adjusts watches and clocks:

examines timepiece through magnifying lenses to discover defects; removes balances, springs and other parts using pliers, screwdrivers, tweezers and other tools; repairs or replaces damaged parts; cleans parts with benzine or other cleaning substance; reassembles and adjusts timepiece; lubricates moving parts; regulates timepiece movement, testing it in various positions.

May test timepieces for magnetism and demagnetise them. May make parts using watchmaker's lathe.

8-42.30 Precision-Instrument Maker and Repairer.

Makes, adjusts and repairs mechanical instruments and mechanical portions of electrical and optical instruments:

studies drawings and specifications; selects material, such as metal, plastic or glass, and marks it off; cuts, grinds, smooths or otherwise shapes material to prescribed dimensions using measuring instruments and hand and machine tools; brazes, solders, hardens, anneals or tempers metal parts as necessary; assembles parts and ensures completed instrument works satisfactorily; paints, lacquers, enamels, engraves or otherwise finishes instruments.

May specialise in repairing precision instruments or in making a particular type of instrument, such as air, hydraulic or mechanical meters and indicators, and be designated accordingly.

8-42.35 Optical Instrument Maker and Repairer.

Adjusts and repairs optical instruments and assembles optical parts, incorporating such items as precision lenses, prisms, and mirrors:

selects and assembles optical elements for instruments and fits them in position; scrapes, files and laps mount of instrument to align optical elements; centres and focuses instrument on standard targets and adjusts and calibrates instrument; anchors lenses and other optical elements with adhesive substance or retaining ring.

May specialise in a particular type of optical instrument such as telescopes, cameras or gunsights, or in repair work and be designated accordingly.

8-42.40 Precision-Instrument Assembler.

Assembles prepared parts that do not require further tooling, in the manufacture of precision and optical instruments:

positions and assembles parts using screwdrivers, pliers, holding fixtures and other hand tools and work aids; bends and taps parts into alignment, using pliers and mallets; turns compensating screws or makes other adjustments to set tensions and clearances in mechanism; checks alignment, dimensions and clearances, using fixed gauges, feelers, rules and square.

May operate riveting press, punch press, spot-welder or similar machines to install or fasten parts. May operate assemblies to verify proper functioning. May specialise in the assembly of a particular type of instrument, such as weighing machines or cameras and photographic accessories, and be designated accordingly.

8-42.45 Orthopaedic Appliance Maker and Repairer.

Makes and repairs orthopaedic appliances such as artificial limbs and body supports:

works to measurements and specifications when provided by *Orthopaedic technician (0-79.50)* or takes measurements and makes plaster cast of limb or body deformity; makes drawings and patterns of parts to be made; cuts parts from metal, wood, plastic, cork, leather and other materials and shapes them using hand and power tools; covers metal or wooden parts with leather or plastic material; assembles parts and pads them with leather, felt or cork; polishes completed appliance on buffing wheels; makes adjustments where necessary for comfort of wearer; repairs worn parts or damaged appliances.

8-42.50 Dental Prosthesis Maker and Repairer.

Makes and repairs dentures and other dental aids:

makes plaster casts for upper and lower jaws from wax impressions taken by dentist; shapes metal, vulcanite or plastic plates for dentures, using plaster casts; mounts artificial porcelain or plastic teeth in plates; finishes dentures on grinding and buffing wheels; constructs metal clamps, inlays, bridgework and other aids according to specifications; repairs dental aids.

May form and bake porcelain or plastic teeth and crowns.

8-42.90 Other Watch, Clock and Precision-Instrument Makers.

This group includes watch, clock and precision instrument makers not elsewhere classified, for example those who specialise in making and repairing particular types of medical or dental instruments, thermostatic control instruments, or panel instruments for vehicles.

8-43 Motor-Vehicle Mechanics

Workers in this unit group service and repair the mechanical and related equipment of passenger and delivery cars, trucks and other motor vehicles.

Their functions include:

examining, dismantling, rebuilding and replacing defective mechanical parts;

adjusting motors, brakes, steering and other parts of motor vehicles;

servicing and repairing motor cycles;

performing related tasks.

8-43.20 Automobile Mechanic.

Repairs, services and overhauls automobiles and assimilated motor vehicles:

examines vehicle to ascertain nature, extent and location of defects; plans work, using charts and technical manuals; dismantles engine, transmission, differential, or other parts requiring attention; repairs or replaces parts such as pistons, rods, gears, valves, bearings, breaker points or gaskets, and accessories such as spark plugs; relines and adjusts brakes, solders leaks in radiator, rebushes steering mechanism and carries out other repairs; tunes motor by adjusting ignition, carburettor, valves and timing mechanism; tests repaired vehicle in workshop or on road.

May rebuild parts using lathes, shapers, welding equipment and hand tools. May do electrical and body repairs and spray painting. May specialise in repairing a particular type of engine, such as diesel automobile engines, and be designated accordingly.

8-43.30 Motor-Truck Mechanic.

Repairs, services and overhauls trucks and trucking equipment such as trailers:

performs tasks similar to those of *Automobile mechanic (8-43.20)* but works on motor trucks and related equipment.

8-43.40 Motor-Cycle Mechanic.

Repairs, services and overhauls motor cycles and motorised pedal cycles:

performs tasks similar to those of *Automobile mechanic (8-43.20)* but specialises in repairing, servicing and overhauling motor cycles and other motorised pedal cycles.

8-43.90 Other Motor-Vehicle Mechanics.

This group includes motor vehicle mechanics not elsewhere classified, for example those specialising in a particular type of motor vehicle repairs such as repairing automatic transmissions, tuning up engines, or repairing brake systems or motor cooling systems.

8-44 Aircraft Engine Mechanics

Workers in this unit group service, repair and overhaul aircraft engines.

Their functions include:

examining, testing and servicing aircraft engines;

replacing engine components or complete engines at an airline station;

performing related tasks.

8-44.10 Aircraft Engine Mechanic (General).

Services, repairs and overhauls aircraft engines, such as jet, turbo-prop and piston engines, and other mechanical equipment of aircraft:

tests engine, using testing equipment; examines engine for cracked cylinders, oil leaks and other defects; dismantles and inspects parts for wear or other defects; consults manufacturers' manuals and airline's maintenance manual for specifications and feasibility of repair or replaces defective parts; repairs, assembles and replaces parts; removes engine from aircraft for overhaul and installs replacement; inspects, services, and repairs pneumatic and hydraulic systems; performs other duties to service aircraft mechanisms, including flushing crank-case, cleaning screens, greasing moving parts and checking brakes.

8-44.20 Aircraft Engine Service Mechanic.

Services engines, engine parts and other mechanical equipment of aircraft at line station, making repairs required to keep aircraft in safe operating condition:

performs tasks similar to those of *Aircraft engine mechanic (general) (8-44.10)* but specialises in servicing aircraft of an airline at a regular stopping place, effecting engine adjustments and mechanical repairs, generally of a minor nature, during stopover; inflates tyres and checks oil reservoirs.

May remove engines for overhaul and install replacements.

8-44.90 Other Aircraft Engine Mechanics.

This group includes aircraft engine mechanics not elsewhere classified, for example those specialising in a particular type of work, such as repairing aircraft engine cylinders or propeller assemblies.

8-49 Machinery Fitters, Machine Assemblers and Precision-Instrument Makers (except Electrical) Not Elsewhere Classified

Workers in this unit group perform tasks related to machinery fitting and assembling and precision instrument making (except electrical) not classified elsewhere.

Their functions include:

servicing and repairing engines (except motor vehicle and aircraft engines), industrial machinery and related equipment (except electrical);

oiling and greasing stationary engines, machinery and vehicles (except ships' engines);

inspecting and testing new machinery and mechanical equipment for conformance with manufacturer's standards;

bolting, screwing, clipping or riveting together prepared metal parts;

performing other tasks related to the foregoing.

8-49.10 Machinery Mechanic (General).

Services and repairs various types of machinery, engines and related equipment (except automobile and aircraft engines and electrical apparatus):

examines faulty machinery and related equipment to ascertain nature and location of defects; dismantles equipment, wholly or partly, to remove damaged or worn parts; repairs or replaces defective parts; assembles parts, doing supplementary tooling as necessary to ensure accurate fit; tests reassembled equipment and makes necessary adjustments; checks, adjusts and lubricates machines and related equipment and performs other tasks to keep them in good working order.

8-49.15 Reciprocating Steam-Engine Mechanic.

Repairs and services reciprocating steam engines, including those used for ship propulsion:

performs tasks similar to those of *Machinery mechanic (general) (8-49.10)* but specialises in adjusting, servicing and repairing reciprocating steam engines.

8-49.20 Diesel Engine Mechanic (except Motor Vehicle).

Repairs and services diesel engines which drive generators and other stationary equipment, railway locomotives, construction machinery and other mobile equipment, except motor vehicles:

performs tasks similar to those of *Machinery mechanic (general) (8-49.10)* but specialises in adjusting, repairing and servicing diesel engines.

8-49.25 Turbine Mechanic (except Aircraft and Marine Turbines).

Services and repairs turbines (except aircraft and ship turbines):

performs tasks similar to those of *Machinery mechanic (general) (8-49.10)* but specialises in servicing, adjusting and repairing turbines (other than marine or aircraft turbines).

8-49.30 Metalworking Machine-Tool Mechanic.

Services and repairs metalworking machine tools which cut, shape and grind metal to fine tolerances:

performs tasks similar to those of *Machinery mechanic (general) (8-49.10)* but specialises in metalworking machine tools, such as drilling, boring, grinding, planing and shaping machines and lathes.

8-49.35 Mining Machinery Mechanic.

Services and repairs mining machinery:

performs tasks similar to those of *Machinery mechanic (general) (8-49.10)* but specialises in servicing, adjusting and repairing mining machines such as borers, cutters and conveyors.

8-49.40 Printing Machinery Mechanic.

Services and repairs printing machinery:

performs tasks similar to those of *Machinery mechanic (general) (8-49.10)* but specialises in servicing, adjusting and repairing printing machines, including linotype, monotype, letterpress, rotary-press and other specialised printing machines.

8-49.45 Textile Machinery Mechanic.

Services and repairs textile machinery:

performs tasks similar to those of *Machinery mechanic (general) (8-49.10)* but specialises in servicing, adjusting and repairing textile machines such as picking, carding, spinning, winding, weaving and knitting machines.

8-49.50 Woodworking Machinery Mechanic.

Services and repairs machines which cut and shape wood:

performs tasks similar to those of *Machinery mechanic (general) (8-49.10)* but specialises in servicing, adjusting and repairing woodworking machines such as sawing, planing, profiling and mortising machines and wood lathes.

8-49.55 Agricultural Machinery Mechanic.

Services and repairs agricultural machinery:

performs tasks similar to those of *Machinery mechanic (general) (8-49.10)* but specialises in servicing, adjusting and repairing agricultural machines such as cultivating, planting, reaping, threshing and baling machines.

8-49.60 Earth-Moving Equipment and Construction Machinery Mechanic.

Services and repairs earth-moving equipment and construction machinery:

performs tasks similar to those of *Machinery mechanic (general) (8-49.10)* but specialises in servicing, adjusting and repairing earth-moving and construction machinery such as mechanical shovels, bulldozers, excavators and levellers.

8-49.65 Office Machines Mechanic.

Services and repairs mechanical parts of office machines, such as typewriters and duplicating, addressing, accounting and calculating machines:

performs tasks similar to those of *Machinery mechanic (general) (8-49.10)* but specialises in servicing and repairing office machines.

8-49.70 Plant Maintenance Mechanic.

Repairs and maintains installed machinery, plumbing and mechanical structures of an industrial or other establishment:

performs tasks similar to those of *Machinery mechanic (general) (8-49.10)* but specialises in repairing and maintaining mechanical installations in an establishment.

May also install and repair electrical equipment, wiring and fixtures, make and repair wooden structures, and paint walls, floors or woodwork.

Building maintenance man is classified in 9-59.20.

8-49.75 Pedal-Cycle Repairer.

Services and repairs pedal cycles:

examines defective cycles to ascertain nature and location of defects; replaces damaged parts, aligns wheels and frame, relines brakes, mends tires and does other repairs; lubricates parts, adjusts steering gear, chain-drive, speed gear and lights; performs other tasks to maintain cycles in good condition.

May braze, solder and paint parts.

Repairer of motor cycles and motorised pedal cycles is classified as *Motor cycle mechanic (8-43.40)*.

8-49.80 Oiler and Greaser (except Ships' Engines).

Lubricates the moving parts of stationary engines, motor vehicles and machinery (except ships' engines):

lubricates parts according to lubricating charts or own judgment and knowledge of engine or machine to be lubricated; fills grease-gun with required type of lubricant and applies gun to greasing points; pours oil from oiling can into exterior lubrication holes or slots and packs axle and steering boxes with grease; refills or changes oils in engine reservoirs at prescribed intervals with required type of lubricant; reports mechanical defects to mechanic.

May make minor adjustments and assist machine operators or repairmen.

Ship's oiler and greaser is classified in 9-82.30.

8-49.85 Mechanical Products Inspector and Tester.

Inspects and tests machinery and related mechanical equipment for finish, mechanical operation and conformance to manufacturer's standards:

checks equipment and parts against technical specifications; examines surfaces for flaws and colour finish; observes alignment of doors, panels and control dials with adjacent parts; connects equipment with power source and testing devices and observes mechanical operation of parts and machine; rejects faulty equipment or parts; records information on inspection ticket.

May do minor adjustments. May inspect articles in various stages of production. May specialise in inspection of finish or mechanical operation, or in a particular type of equipment, and be designated accordingly.

8-49.90 Other Machinery Fitters, Machine Assemblers and Precision-Instrument Makers (except Electrical).

This group includes machinery fitters, machine assemblers and precision-instrument makers (except electrical) not elsewhere classified, for example, those who assemble metal products from prepared parts not requiring further tooling or adjusting, by fixing the parts together with bolts, clips, screws, rivets or similar devices.

8-5 ELECTRICAL FITTERS AND RELATED ELECTRICAL AND ELECTRONICS WORKERS

Workers in this minor group fit, assemble, install, maintain and repair electrical and electronic equipment such as electrical motors, generators, instruments, signal transmitters and receivers, domestic appliances, switchgear and control apparatus; install and service electrical wiring systems in homes, industrial plants and other establishments, and in ships, motor vehicles and aircraft; install and service electrical power transmission cables, telephone and telegraph lines and related equipment. They are classified in the unit groups listed below:

8-51	Electrical Fitters.
8-52	Electronics Fitters.
8-53	Electrical and Electronic Equipment Assemblers.
8-54	Radio and Television Repairmen.
8-55	Electrical Wiremen.
8-56	Telephone and Telegraph Installers.
8-57	Electric Linemen and Cable Jointers.
8-59	Electrical Fitters and Related Electrical and Electronics Workers Not Elsewhere Classified.

8-51 Electrical Fitters

Workers in this unit group fit, adjust and repair electrical machinery and other electrical apparatus in factory, workshop or place of use.

Their functions include:

fitting, adjusting and repairing various kinds of electrical machinery and other electrical apparatus;

fitting, adjusting and repairing electrical motors and generators, switchgear and control apparatus, electrical instruments, or electrical parts of elevators and related equipment;

fitting, adjusting and repairing electrical apparatus in domestic appliances, office machines, industrial machines and other appliances, aircraft, ships and vehicles;

performing related tasks.

Workers assembling electrical and electronic equipment from finished parts not requiring further tooling are classified in unit group 8-53. *Electrical wiremen* (including aircraft, ship, vehicle and building electricians) are classified in unit group 8-55.

8-51.10 Electrical Fitter (General).

Fits, adjusts, assembles and repairs various kinds of electrical machinery and electrical apparatus in factory, workshop or place of use:

examines wiring and assembly diagrams and other specifications; checks parts for accuracy of fit and if necessary chisels, files, scrapes and does other supplementary tooling; fits parts together using screwdrivers, pliers and other tools; installs and connects wiring, soldering joints where necessary; adjusts built-in control instruments and indicator dials; diagnoses faults with aid of testing instruments; dismantles equipment if required and repairs or replaces broken and worn parts and faulty wiring.

8-51.20 Electrical Motor and Generator Fitter.

Fits, adjusts and repairs electrical motors and generators in factory, workshop or place of use:

performs tasks similar to those of *Electrical fitter (general) (8-51.10)* but specialises in electrical motors and generators.

8-51.30 Electrical Transformer Fitter.

Fits, adjusts and repairs electrical transformers in factory, workshop or place of use:

performs tasks similar to those of *Electrical fitter (general) (8-51.10)* but specialises in electrical transformers.

8-51.40 Electrical Switchgear and Control Apparatus Fitter.

Fits, adjusts, and repairs electric switchgear and control apparatus in factory, workshop or place of use:

performs tasks similar to those of *Electrical fitter (general) (8-51.10)* but specialises in electric switchgear and control apparatus.

8-51.50 Electrical Instrument Fitter.

Fits, adjusts, and repairs electrical instruments and electrical parts of mechanical instruments in factory, workshop or place of use:

performs tasks similar to those of *Electrical fitter (general) (8-51.10)* but specialises in electrical instruments and electrical parts of mechanical instruments.

8-51.60 Electrical Elevator and Related Equipment Fitter.

Fits, adjusts and repairs electrical parts of elevators and related equipment in factory, workshop or place of use:

performs tasks similar to those of *Electrical fitter (general) (8-51.10)* but specialises in electrical parts of elevators, escalators, conveyors and similar equipment.

8-51.90 Other Electrical Fitters.

This group includes electrical fitters not elsewhere classified, for example those who specialise in fitting, adjusting and repairing electrical components of domestic appliances, office machines, industrial machines and other appliances, aircraft, ships and vehicles.

Workers occupied primarily in making simple repairs to electrical apparatus are classified in *Electrical repairman (8-55.70)*.

8-52 Electronics Fitters

Workers in this unit group fit, adjust and repair electronic apparatus in factory, workshop or place of use.

Their functions include:

fitting, adjusting and repairing various kinds of electronic equipment;

fitting, adjusting, installing and repairing radio and television transmitters and radar equipment;

fitting, adjusting and repairing electronic components of medical equipment, computers and related equipment, industrial equipment and signalling systems;

performing related tasks.

Radio and television mechanic is classified in 8-54.20.

8-52.10 Electronics Fitter (General).

Fits, adjusts and repairs various kinds of electronic equipment in factory, workshop or place of use:

examines drawings and wiring diagrams; checks parts for accuracy of fit and, where necessary, files, chisels, scrapes and does other supplementary tooling; fits parts together or mounts them on chassis or panels, using hand tools; installs and connects wiring, soldering joints where necessary; tests, calibrates and adjusts equipment; diagnoses faults with aid of testing instruments; dismantles equipment, if necessary, and replaces faulty parts and wiring.

8-52.20 Electronics Fitter (Radio, Television and Radar Equipment).

Fits, adjusts, installs and repairs radio and television transmitters and radar equipment in factory, workshop or place of use:

performs tasks similar to those of *Electronics fitter (general) (8-52.10)* but specialises in television transmitters, radar equipment, radio transmitters and two-way radio communications equipment.

8-52.30 Electronics Fitter (Medical Equipment).

Fits, adjusts and repairs electronic components of medical equipment in factory, workshop or place of use:

performs tasks similar to those of *Electronics fitter (general) (8-52.10)* but specialises in electronic medical equipment such as X-ray, electroencephalograph and electrocardiograph machines.

8-52.40 Electronic Computer and Related Equipment Fitter.

Fits, adjusts and repairs computers and related electronic equipment in factory, workshop or place of use:

performs tasks similar to those of *Electronics fitter (general) (8-52.10)* but specialises in computers and related electronic equipment.

8-52.50 Electronics Fitter (Industrial Equipment).

Fits, adjusts and repairs electronic components of industrial machinery and related equipment in factory, workshop or place of use:

performs tasks similar to those of *Electronics fitter (general) (8-52.10)* but specialises in electronic components of industrial machinery and related equipment.

8-52.60 Electronic Signalling Systems Fitter.

Fits, adjusts and repairs electronic components of signalling systems in factory, workshop or place of use:

performs tasks similar to those of *Electronics fitter (general) (8-52.10)* but specialises in signalling systems.

8-52.90 Other Electronics Fitters.

This group includes electronics fitters not elsewhere classified, for example those who specialise in fitting, adjusting and repairing electronic devices and electronic components of a particular type of machine or equipment not referred to in the foregoing.

8-53 Electrical and Electronic Equipment Assemblers

Workers in this unit group assemble finished parts to make electrical and electronic equipment.

Their functions include:

assembling finished parts of electrical machinery, domestic appliances, radio and television receivers and other electrical and electronic apparatus;

winding electrical wire coils onto cores by machine and by hand;

performing related tasks.

8-53.20 Electrical Equipment Assembler.

Assembles finished parts of electrical machinery and other electrical apparatus:

fixes finished parts in position using screwdrivers, pliers and other hand tools; installs and connects wiring by clamping or soldering.

May work from diagrams. May specialise in assembly of particular type of machinery or electrical equipment, such as domestic appliances or electric clocks, and be designated accordingly.

8-53.30 Electronic Equipment Assembler.

Assembles finished parts of electronic equipment:

assembles parts or mounts them on chassis, using hand tools; installs and connects wiring, mainly by soldering.

May rivet parts together. May work according to wiring diagram. May specialise in assembly of particular type of equipment, such as radio or television receivers, and be designated accordingly.

8-53.40 Coil Winder (Machine).

Winds wire onto bobbins or directly onto cores by machine to make electrical coils:

secures core to revolving mechanism of machine; selects required wire stock, pulls wire from feeder spool and attaches end to core; starts machine to revolve core and winds wire on it for specified number of turns; stops machine, cuts wire and removes coil.

May specialise in winding particular types of coils, such as heavy-duty transformer, stator or rotor coils, and be designated accordingly.

8-53.50 Coil Winder (Hand).

Winds wire onto cores by hand to make or rewind electrical coils:

secures core in rotary holding device; selects required wire from stock, pulls wire from feeder spool and attaches end to core; rotates holding device to wind specified number of turns on core; cuts wire and removes coil.

May specialise in winding particular types of coils, such as heavy-duty transformer coils or stator or rotor coils for large generators, and be designated accordingly.

8-53.90 Other Electrical and Electronic Equipment Assemblers.

This group includes electrical and electronic equipment assemblers not elsewhere classified, for example those assembling microelectronic equipment, such as hearing aids and satellite communications devices, using magnifying lens, hand tools and spot welder; assembling flexible electric leads; winding capacitors; assembling capacitors (condensers); assembling electronic tubes (radio valves).

8-54 Radio and Television Repairmen

Workers in this unit group repair radio and television receivers in workshop or place of use.

Their functions include:

examining radio and television receivers, replacing defective parts and making adjustments and repairs;

performing related tasks such as installing and repairing radio and television antennas.

8-54.20 Radio and Television Mechanic.

Repairs radio and television receivers in workshop or place of use:

examines drawings and wiring diagrams; diagnoses faults with aid of testing equipment; repairs or replaces faulty parts; renews and reconnects wiring where necessary; tests and adjusts receiver.

May install or repair radio or television antennas.

8-54.90 Other Radio and Television Repairmen.

This group includes radio and television repairmen not elsewhere classified; for example those installing and repairing radio and television antennas.

8-55 Electrical Wiremen

Workers in this unit group install, service and repair electrical wiring and related equipment.

Their functions include:

installing, servicing and repairing electrical wiring systems and related equipment in houses, industrial and commercial establishments, other buildings, aircraft, motor vehicles and ships;

repairing in workshop or place of use wiring faults and other minor defects in domestic appliances and other electrical apparatus;

performing related tasks, such as installing illuminated signs and installing and servicing wiring systems in mines.

8-55.10 Electrician, General.

Installs, maintains and repairs electrical wiring and related equipment in buildings and other structures:

examines drawings and other specifications; positions and fixes distribution boards, fuse boxes, switches and light and power points; cuts, bends and installs conduit and draws wires through it, or installs sheathed cable; connects wiring to source of electricity supply, tests for defects and makes necessary adjustments; replaces or repairs defective wiring and related equipment.

8-55.20 Building Electrician.

Installs electrical wiring and related equipment in houses, industrial and commercial establishments and other buildings:

performs tasks similar to those of *Electrician (general) (8-55.10)* but specialises in installation of electrical wiring and related equipment in houses, industrial and commercial establishments and other buildings.

May also do repairs of electrical wiring and related equipment in buildings, including those undergoing conversion or alteration.

Maintenance electrician (buildings) is classified in 8-55.60.

8-55.30 Aircraft Electrician.

Installs and repairs electrical wiring and related equipment in aircraft:

performs tasks similar to those of *Electrician (general) (8-55.10)* but specialises in installing and repairing aircraft electrical wiring and related equipment.

8-55.35 Ship's Electrician.

Installs and repairs electrical wiring and equipment in ships:

performs tasks similar to those of *Electrician (general) (8-55.10)* but specialises in the installation and repair of ship's electrical wiring and equipment, such as sheathed cable installation, fire-alarm boxes, intercommunication systems and motors.

8-55.40 Vehicle Electrician.

Installs and repairs electrical wiring and other electrical equipment in vehicles, such as trains, trams and motor vehicles:

performs tasks similar to those of *Electrician (general) (8-55.10)* but specialises in installing and repairing electrical wiring and other electrical equipment in vehicles; repairs and adjusts generators, starter motors and ignition systems of motor vehicles.

8-55.50 Stage and Studio Electrician.

Installs, maintains and repairs electrical equipment and lights used in theatre and studio:

installs lights and electrical equipment, such as bells, buzzers and microphones; positions spotlights and floodlights to illuminate stage or studio and places colour frames on lights to obtain coloured effects; prepares cue sheet to determine lighting effect required by script; operates switchboard to control lights and other electrical equipment; maintains and repairs stage or studio lighting equipment.

8-55.60 Maintenance Electrician.

Repairs and maintains wiring and electrical equipment in industrial or commercial establishments, institutional buildings such as schools and hospitals, or residential buildings:

examines wiring and equipment such as switches, switchboards, motors and other electrical mechanisms; locates faults, referring to wiring diagrams and schematics, and using test equipment; repairs or replaces items such as defective wiring, burnt-out fuses and other components of electrical equipment; inspects condition of electrical wiring and equipment to ensure conformance with building codes and safety regulations and to maintain efficient operation; makes connections to new electrical installations; cleans and oils motors.

May install new electrical equipment or systems, rewind coils, overhaul and repair or modify equipment. May follow set maintenance programme and keep records of condition of installation.

8-55.70 Electrical Repairman.

Makes repairs, generally of a simple character, to electrical apparatus, mainly of a domestic kind, in workshop or place of use:

diagnoses faults with aid of electrical testing equipment; dismantles or partly dismantles equipment if necessary; replaces broken or defective parts and wiring; reconnects loose wires by soldering; reassembles and tests article repaired.

8-55.90 Other Electrical Wiremen.

This group includes electricians and electrical repairers not elsewhere classified, for example those installing and servicing illuminated signs, electrical wiring and related equipment in mines, and accumulators arranged in series to provide electric lighting or power.

8-56 Telephone and Telegraph Installers

Workers in this unit group install, service and repair telephone and telegraph equipment in central installation or place of use.

Telephone and telegraph lineman is classified in 8-57.40.

8-56.20 Telephone and Telegraph Installer.

Installs manually operated and automatic telephone and telegraph equipment:

examines drawings and wiring diagrams; fixes telephone switchboards, relay racks, dial-switching equipment, receiving sets, telegraphic typewriters and other equipment in position; interconnects various parts of equipment by wiring, soldering and clamping; connects incoming and outgoing cables to equipment; tests installation and adjusts relays and other electrical devices to ensure maximum operating efficiency.

May specialise in installing either telephone or telegraph equipment and be designated accordingly.

8-56.30 Telephone and Telegraph Mechanic.

Services and repairs manually operated and automatic telephone and telegraph equipment:

examines drawings and wiring diagrams; diagnoses faults in equipment and circuits with aid of testing equipment; dismantles, or partly dismantles, equipment to remove faulty parts; repairs or replaces parts; reconnects wiring and solders or clamps joints; tests and readjusts equipment to ensure maximum operating efficiency; checks equipment periodically and keeps it in good working order.

May specialise in repairing either telephone or telegraph equipment and be designated accordingly.

8-56.90 Other Telephone and Telegraph Installers.

This group includes telephone and telegraph installers and repairers not elsewhere classified, for example those specialising in one particular part of the work, such as adjusting relays or telegraph repeaters, diagnosing faults in equipment and circuits, making operating tests on circuits and relays to check on functioning, or maintaining teletype machines.

8-57 Electric Linemen and Cable Jointers

Workers in this unit group construct, install and repair electrical lines and joint cables.

Their functions include:

installing and repairing overhead electric power and electric traction lines;

installing and repairing overhead and underground telephone and telegraph lines;

making joints in surface and underground cables;

maintaining underground electric power transmission lines;

performing related tasks.

8-57.20 Electric Power Lineman.

Constructs and repairs overhead high-tension or low-tension power lines conducting electricity between generating stations, substations and consumers:

climbs poles and pylons and fixes insulators, lightning arresters and other equipment; strings cables between pylons, poles and buildings, ensuring that proper sag is left in cables to avoid breakage under changing atmospheric conditions; joints cables by splicing and soldering; repairs or replaces defective lines and auxiliary equipment.

May specialise in high-voltage or low-voltage power lines. May erect or replace poles with assistance of other workers.

Linemen who install cables in prepared trenches are classified in 8-57.90.

8-57.30 Electric Traction Lineman.

Installs and repairs overhead wires to carry electricity for railway trains, trams or trolley buses:

erects masts with assistance of other workers; installs supporting crosswires and insulators between opposite masts, working on an elevated platform; attaches conductor wires to insulated parts of crosswires; clamps, splices and solders wires; adjusts sag of conductor wires; repairs defective wires and auxiliary equipment.

8-57.40 Telephone and Telegraph Lineman.

Installs and repairs overhead and underground wires and cables for telephone and telegraph transmission:

installs and repairs overhead telephone and telegraph lines, attaching terminal boxes, repeaters and other specialised equipment to poles and performing other tasks similar to those of *Electric power lineman (8-57.20)*; installs auxiliary equipment such as terminal boxes and repeaters and makes connections to complete underground telephone and telegraph cable systems and keeps installation in good order.

8-57.50 Electric Cable Jointer.

Makes joints in surface and underground cables:

separates conductor wires and removes insulation from ends; joins and solders corresponding conductor wires; dries out moisture and wraps joints with insulating material; covers insulated joints with lead sleeves and connects these to cable sheathing; places and fixes jointed cables in junction boxes and fills them with pitch or other compound; tests conductor wires for defects.

May specialise in type of cable jointed, such as power, telephone or telegraph, and be designated accordingly.

8-57.90 Other Electric Linemen and Cable Jointers.

This group includes electric linemen and cable jointers not elsewhere classified, for example those specialising in laying cables underground, or in maintenance and repair of underground electric power transmission cables.

Workers who pull heavy cables through channels, lay pipes for cables and line trenches with concrete are classified in minor group 9-5.

8-59 Electrical Fitters and Related Electrical and Electronics Workers Not Elsewhere Classified

Workers in this unit group are engaged in electrical and electronic fitting and related work not elsewhere classified, for example those engaged in inspecting and testing fabricated electrical and electronic products.

8-59.20 Electrical and Electronic Products Inspector and Tester.

Inspects and tests electrical or electronic equipment for conformance to manufacturer's standards:

checks equipment and parts according to technical specifications; connects unit to power source and testing devices such as wattmeter, voltmeter or potentiometer; checks components, electrical connections and quality of units; rejects faulty products; records information on inspection ticket.

May inspect mechanical operation of equipment. May inspect components, and equipment in various stages of production. May specialise in inspection of finish or mechanical operation, or in a particular type of equipment, and be designated accordingly.

8-59.90 Other Electrical Fitters and Related Electrical and Electronics Workers.

This group includes electrical fitters and related electrical and electronics workers not elsewhere classified.

8-6 BROADCASTING STATION AND SOUND-EQUIPMENT OPERATORS AND CINEMA PROJECTIONISTS

Workers in this minor group operate radio and television broadcasting equipment, install and operate sound-recording and amplifying apparatus and operate cinema projectors. They are classified in the unit groups listed below:

8-61 Broadcasting Station Operators.

8-62 Sound-Equipment Operators and Cinema Projectionists.

8-61 Broadcasting Station Operators

Workers in this unit group operate and control equipment transmitting radio or television broadcasts and related equipment in radio or television studios and perform related tasks.

Workers who maintain and repair radio or television broadcasting equipment are classified in unit group 8-52.

Television camera operator is classified in 1-63.70.

8-61.20 Radio and Television Transmitting Equipment Operator.

Operates and adjusts equipment of transmitter to broadcast radio and television programmes:

switches transmitter on and off; monitors console panel to ascertain that components are operative and sets transmitter on frequency; observes indicators, views and listens to programmes, adjusts transmitter controls for tone and volume of sound and picture quality; maintains log of programmes transmitted; diagnoses faults by testing components using electronic testing equipment; cleans and services equipment.

May make minor repairs to equipment and replace parts using hand tools. May specialise in a particular type of equipment and be designated accordingly.

8-61.30 Radio and Television Studio Equipment Operator.

Operates radio and television broadcasting studio equipment:

sets up microphones and amplifiers for use in sound pickup; adjusts controls of console to cut microphones in and out, and to blend output of individual microphones for balance between music, dialogue and sound effects; controls video console to regulate transmission of television scenes, observes meters and indicators, and adjusts controls to maintain technical quality of broadcast; tests machines and equipment with testing instruments.

May clean and service equipment, replace faulty components and resolder wires.

Sound-recording equipment operator is classified in 8-62.20, *Television camera operator* in 1-63.70, and *Stage and studio electrician* in 8-55.50.

8-61.90 Other Broadcasting Station Operators.

This group includes broadcasting station operators not elsewhere classified, for example those operating and servicing mobile radio and television broadcasting equipment outdoors, operating video recording equipment to photograph television images being broadcast, as shown on video screen, to record the sound accompaniment and prepare film for rebroadcasting.

8-62 Sound-Equipment Operators and Cinema Projectionists

Workers in this unit group set up and operate sound-recording and amplifying equipment and operate cinema projectors.

Their functions include:

operating electronic equipment to record sound on tape, wire, film or discs;

installing and operating sound-amplifying equipment;

operating a cinema projector;

editing sound recordings on film and tape, producing sound effects for radio broadcasts, films or stage performances;

performing related tasks.

8-62.20 Sound-Recording Equipment Operator.

Operates electronic equipment which records sound impulses on reels of tape, wire, film or composition discs for motion pictures, gramophone-record production, radio broadcasting and other purposes:

places microphones in position and connects them to recording equipment; places reels of tape, wire, film or blank discs in machine; sets volume and tone controls and makes other necessary adjustments; starts machine, watches operation closely and listens to sound being recorded; manipulates controls as required.

May perform minor repairs.

8-62.30 Public Address Equipment Operator.

Installs and operates sound-amplifying equipment:

places loudspeakers in position and connects them to amplifiers; places microphones near speaker, orchestra or other sources of sound and connects them to amplifiers; tests installation by switching on and listening from various points while someone talks into microphone; adjusts position of microphones and loudspeakers as necessary; regulates volume and tone of sound reproduction.

May record sound on tape recorder and amplify sound from tape recorder or record player. May make minor repairs of equipment.

8-62.40 Cinema Projectionist.

Operates a motion-picture projector and its sound-reproducing equipment:

places reel of film on projector and threads end of film through projector guides and onto take-up reel; starts projector and adjusts sound and focus of image; watches operation and, if film breaks, threads broken end through projector guides with minimum loss of time; rewinds projected films in readiness for another showing and repairs faulty sections; cleans lenses and oils equipment periodically and makes minor repairs.

8-62.90 Other Sound-Equipment Operators and Cinema Projectionists.

This group includes sound-equipment operators and cinema projectionists not elsewhere classified, for example those editing tapes to prepare master tape for making multiple copies; testing pressed phonograph records for sound quality, using sound reproduction equipment; editing film to synchronise music and dialogue and to insert sound effects; producing sound effects by artificial means, or from tapes or recordings, to accompany action portrayed by radio or television broadcast; operating a sound-mixing panel backstage during theatrical performances.

8-7 PLUMBERS, WELDERS, SHEET-METAL AND STRUCTURAL METAL PREPARERS AND ERECTORS

Workers in this minor group assemble, fit, install and repair plumbing fixtures, pipes and pipeline systems; form and cut metal parts using flame, electric-arc or other sources of heat; make and repair articles and parts of articles of cold sheet metal; shape, assemble, erect and repair heavy metal members such as girders and plates to form structures or structural frameworks. They are classified in the unit groups listed below:

8-71 Plumbers and Pipe Fitters.
8-72 Welders and Flame-Cutters.
8-73 Sheet-Metal Workers.
8-74 Structural Metal Preparers and Erectors.

8-71 Plumbers and Pipe Fitters

Workers in this unit group assemble, fit, install and repair plumbing fixtures, pipes and pipeline systems.

Their functions include:

cutting, threading, bending, jointing, assembling, installing and maintaining pipes, fittings and fixtures of drainage, heating, water supply and sanitary systems;

assembling, installing and maintaining pipeline systems in buildings, industrial plants, ships and aircraft;

performing related tasks.

Lead burner and *Brazer* are classified in unit group 8-72.

8-71.05 Plumber (General).

Assembles, installs and maintains pipes, fittings and fixtures of drainage, heating, water supply and sanitary systems:

examines drawings and other specifications; locates and marks position of pipe and pipe connections and passage holes for pipes in walls and floors; cuts openings in walls and floors to accommodate pipes and pipe fittings; cuts, reams, threads and bends pipes; assembles and installs valves, pipe fittings, and pipes composed of metals such as iron, steel, brass and lead, and non-metals such as glass, vitrified clay and plastic; joins pipes and fittings using screws, bolts and couplings, or by brazing and welding; caulks joints and tests them for leaks with air and water pressure gauges; installs assemblies and fixtures; does repair and maintenance work, such as replacing tap washers, mending burst pipes and clearing clogged drains; repairs holes made in brickwork or concrete and painting affected by work.

8-71.10 Pipe Fitter (General).

Assembles, installs and maintains high-pressure and low-pressure systems of metal pipes, or combining metal and non-metal pipes, for conducting air, gas, steam, oil, water and other fluids:

examines drawings and other specifications; cuts passage holes in walls and floors; cuts, reams, threads and bends pipes; assembles pipe sections with couplings, bolts and screws or by welding; caulks joints and tests them for leaks with air and water under pressure; secures pipe assembly in place with clamps, brackets and hangers; connects pipes to equipment and appliances, such as meters, taps, fans, pumps and to refrigerating, heating and air-conditioning units; finds and repairs leaks, and repairs joints, couplings and other fittings; repairs pipe passage holes in walls and floors.

8-71.20 Gas Pipe Fitter.

Installs, repairs and maintains gas mains and pipes supplying consumers from mains:

performs tasks similar to those of *Pipe fitter (general) (8-71.10)*; checks and adjusts gradient of pipe in ground using levelling instrument and blocks; installs traps for catching condensed petrol, tar and water; flushes mains with chemical solution and clears smaller gas pipes by compressed-air blast.

8-71.30 Marine Pipe Fitter.

Assembles, installs, maintains and repairs piping systems on ships:

performs tasks similar to those of *Pipe fitter (general) (8-71.10)*; plans layout of pipe assembly to be installed and makes wire template; prepares pipes and assembles them according to template; installs piping and connects it with tanks, boilers, pumps and other appliances and fixtures; tests assemblies before and after installation.

8-71.40 Aircraft Pipe and Tube Fitter.

Assembles, installs and repairs fuel and hydraulic pipelines, instrument tubes, ventilating conduits and other pipes and tubes in aircraft:

examines drawings and other specifications; marks location of clamps, brackets or other supports, drills holes and bolts or rivets supports to structure; bends tubes by hand, by dies or by machine to required shape; cuts tubes and shapes ends for connection with other tubing or fittings; makes connections to such equipment as tanks and valves but not to instruments, electrical equipment, engines or other actuating equipment; repairs defective tubing.

May specialise in hydraulic, ventilating or other systems.

8-71.90 Other Plumbers and Pipe Fitters.

This group includes plumbers and pipe fitters not elsewhere classified, for example those specialising in installing and repairing pipes and tubes for chemical processing apparatus, diesel engines, air-brake systems on vehicles or steam distribution, or in fixing of hangers and brackets to support pipes, or assembling sections of steel pipe to be installed by pipe fitters.

8-72 Welders and Flame-Cutters

Workers in this unit group join and cut metal parts using flame, electric-arc and other sources of heat to melt and cut or to melt and fuse metal.

Their functions include:

welding metal parts, using gas flame, electric arc, thermite compound and other methods;

operating resistance welding machines;

using blow torch to make and repair lead linings, pipes, floors and other lead fixtures;

brazing metal parts together;

cutting metal pieces by means of gas flame and electric arc;

joining metal parts by soldering;

performing related tasks.

8-72.10 Gas and Electric Welder (General).

Welds metal parts by means of oxy-acetylene, other gas flame and electric arc:

performs, as necessary, the tasks of *Gas welder (8-72.15)* and *Electric arc welder (hand) (8-72.20)*.

8-72.15 Gas Welder.

Welds metal parts by means of oxy-acetylene or other gas flame:

examines parts to be welded to determine best method to use; prepares surfaces of parts to be welded; selects torch nozzle and attaches it to blow-pipe; lights torch and adjusts flame by regulating flow of gases; heats parts until they begin to melt and fuses them by applying molten metal from a welding rod; runs flame and welding rod along joint; cleans and smooths welded parts.

May mark off parts and flame-cut metal before welding. May specialise in type of metal welded or gas used and be designated accordingly.

8-72.20 Electric Arc Welder (Hand).

Welds metal parts by means of hand-operated equipment which produces heat from an electric arc:

places parts (workpiece) in position; prepares surfaces where welding is required; selects electrode and inserts it into portable holder; connects welding unit cable to workpiece; switches on power supply; holds electrode a short distance from workpiece to form electric arc; guides electrode along line of weld to deposit metal from electrode and fuse parts together and regulates supply of electricity to control deposit of metal; cleans and smooths welded parts.

May use carbon electrode and manually apply filler rod to supply metal for fusing. May mark parts before welding and work according to drawings or other specifications.

8-72.25 Electric Arc Welder (Machine).

Sets and operates stationary or mobile machine which welds metal parts by means of an electric arc:

performs tasks similar to those of *Electric arc welder (hand) (8-72.20)* but operates welding machine equipment to manipulate workpieces and electrode mechanically.

8-72.30 Thermite Welder.

Welds metal parts by means of a thermite compound: prepares and positions parts to be welded; builds clay mould round parts at weld point; pours thermite compound into mould; ignites compound to heat parts and cause iron contained in compound to melt, flow in mould and weld the parts; cleans and smooths welded parts.

8-72.35 Resistance Welder.

Fuses and bonds metal parts by means of a machine in which heat is provided by passing an electric current through the metal parts placed between electrodes or pressed between roller electrodes:

examines drawings and other specifications; prepares and positions or guides parts to be welded between electrodes or roller electrodes; starts machine to pass electric current through electrodes or roller electrodes; holds controls for specified time to fuse metal by means of pressure and by heat generated through resistance of electric current at weld point; cleans and smooths welded parts.

May operate spot, multiple spot, flash or butt welding machine and be designated accordingly. May operate resistance-welding machine to do brazing.

8-72.40 Lead Burner.

Makes, installs and repairs lead and lead alloy tanks, tank linings, pipes, floors and other lead fixtures and equipment by using blow-torch or oxy-acetylene torch and hand tools:

makes lead fittings and pipes using cutting and shaping tools and joining parts by fusing, riveting or hammering lapped seams; examines lead parts to be installed or repaired; installs lead pipes, tank linings, lead shielding and other lead fixtures; corrects malformations and fills in cavities in lead parts with molten lead; cleans with chemicals, cuts and levels edges of sections to be joined and fits them into place; fuses sections together by moving flame of blow-torch or oxy-acetylene torch along overlapping joints or by heating joints with flame and adding lead from rod; cleans and smooths welded joints.

8-72.45 Brazer.

Bonds (brazes) metal parts together, using gas torch, electric arc or other source of heat and applying brazing alloy and flux:

cleans parts to be joined with wire brush and cleaning solution; coats parts with flux; lays solder or brazing alloy on seams to be joined, heats edges by means of oxy-acetylene torch, electric-arc, induction coil or other heating device and brazes (bonds) them; cleans and smooths brazed joints.

May prepare own flux. May do brazing with resistance-welding machine. May specialise in type of metal or part brazed and be designated accordingly.

8-72.50 Flame-Cutter (Hand).

Cuts metal by means of oxy-acetylene or other gas flame:

fixes appropriate tip into torch nozzle: lights torch and adjusts flame by regulating flow of gases; guides torch along cutting line to melt and remove a narrow strip of the metal, thus cutting the workpiece.

May work to drawings and other specifications and mark out cutting lines. May do welding. May specialise in one type of cutting, such as scrap metal cutting, and be designated accordingly.

8-72.55 Flame-Cutter (Machine).

Operates a machine which cuts metal plates and structural shapes to required dimensions by means of oxy-acetylene or other gas flame:

sets up template in machine to guide cutting; lights torch and adjusts flame by regulating flow of gases; sets and starts controls which move torch automatically over lines and arcs, or according to template contour, at desired speed.

May guide torch by hand along cutting line to cut irregular shapes.

8-72.60 Solderer (Hand).

Joins metal parts with soft solder by means of a soldering iron:

cleans parts and coats them with flux; heats soldering iron in flame or uses electrically heated iron; plunges tip of iron into cleaning compound and tin alloy or solder; applies hot iron to joint and simultaneously feeds solder against it, or presses it on solder strip placed in joint, to melt solder and make joint; cleans soldered joint.

May specialise in soldering a particular type of metal or product and be designated accordingly.

8-72.90 Other Welders and Flame-Cutters.

This group includes welders and flame-cutters not elsewhere classified, for example those cutting metal by electric arc; operating a jewellery-soldering machine; soldering items together by clamping them after inserting a solder or brazing alloy strip and placing them in special furnace, or on furnace conveyor; soldering items together by clamping them and dipping in molten solder; filling holes, grooves and indentations of motor vehicle body panels with solder, using solder stick and oxy-acetylene torch.

8-73 Sheet-Metal Workers

Workers in this unit group make, install and repair articles and parts of articles of sheet metal such as sheet steel, galvanised iron, copper, tin, brass, aluminium and zinc.

Their functions include:

marking sheet metal for cutting and shaping;

making and repairing articles in copper and light alloys, such as containers and ducts;

making and repairing boilers, tanks, vats and other containers from sheet and plate steel;

making and repairing household utensils and other articles in tinplate, or ornamental articles and fittings in sheet metal;

assembling, installing and repairing sheet-metal parts of vehicles and aircraft;

performing other tasks in making and repairing sheet-metal articles.

Metal spinner is classified in 8-39.40 and *Metal-press operator* in 8-39.60.

8-73.10 Sheet-Metal Worker, General.

Makes, installs and repairs a variety of sheet-metal articles by hand and machine:

selects sheet metal and marks it out according to drawings and other specifications; cuts metal using pattern or template as guide; shapes metal by operations such as forming, bending, or beating, preheating metal if necessary; punches or drills holes for rivets, bolts and screws; assembles parts and joins them by welding, brazing, soldering, bolting, riveting, screwing or other methods; caulks seams and trims sheet-metal edges; installs and repairs sheet-metal articles.

8-73.20 Sheet-Metal Marker.

Marks out sheet metal for cutting and shaping:

examines drawings and other specifications; selects metal and marks it with guidelines and reference points.

Metal marker (machine shop, metalworking) is classified in 8-32.50, and *Structural metal marker* in 8-74.20.

8-73.30 Coppersmith.

Makes, installs and repairs articles in copper and light alloys, such as containers, ducts, cowlings and pipes:

performs tasks similar to those of *Sheet-metal worker, general (8-73.10)*, but specialises in articles of copper and light alloys; also works with copper pipes, performing tasks similar to those of *Pipe fitter (general) (8-71.10)*.

May coat articles with tin and lead mixture and also work aluminium, stainless metals and various alloys.

8-73.40 Tinsmith.

Makes and repairs kitchen utensils and other articles in tinplate:

performs tasks similar to those of *Sheet-metal worker, general (8-73.10)*, but specialises in tinplate articles.

May work zinc and various alloys. May specialise in article made and be designated accordingly.

8-73.50 Boilersmith.

Makes and repairs boilers, tanks, vats and other containers of sheet and plate steel:

selects metal and marks it according to drawings and other specifications; cuts plate to desired size and shape, using power shears or flame-cutting equipment; drills and punches holes for rivets and bolts; shapes plate by bending it in power-press; assembles parts by bolting, riveting or welding; caulks seams and rivet heads; chips burrs from plate edges; fixes tubes, valves, taps and other fittings in position.

May assemble prefabricated parts, install boilers and other objects mainly of sheet steel, or specialise in major repairs.

8-73.60 Ornamental Sheet-Metal Worker.

Makes and repairs ornamental articles and fittings of sheet metal, such as house and shop fittings:

performs tasks similar to those of *Sheet-metal worker, general (8-73.10)*, but specialises in decorative articles of sheet metal.

8-73.70 Vehicle Sheet-Metal Worker.

Makes, alters and repairs sheet-metal bodywork of vehicles such as automobiles, buses, trucks, wagons and railway coaches:

lays out, cuts and joins parts using patterns, templates, shears, hand tools and welding or brazing equipment; repairs or replaces damaged fenders, panels and grills, using hand and power tools; performs other tasks similar to those of *Sheet-metal worker, general (8-73.10)*, in sheet-metal working for vehicles.

May specialise in motor vehicle body repairs (including spray painting) and be designated accordingly.

Workers occupied primarily in assembling prefabricated motor vehicle body sections and welding, bolting, screwing or otherwise fixing them in position on new vehicle chassis are classified in 8-49.90 *(Other machinery fitters, machine assemblers and precision-instrument makers (except electrical))*, or in unit group 8-72 *(Welders and flame-cutters)*, as appropriate.

8-73.80 Aircraft Sheet-Metal Worker.

Assembles, installs and repairs sheet-metal parts of aircraft:

performs tasks similar to those of *Sheet-metal worker, general (8-73.10)*, but specialises in assembling, installing and repairing sheet-metal parts of aircraft. May specialise in particular parts of aircraft and be designated accordingly.

Airframe fitter-assembler is classified in 8-41.85.

8-73.90 Other Sheet-Metal Workers.

This group includes sheet-metal workers not elsewhere classified, for example those assembling metal furniture and those specialising in installation of sheet-metal fixtures and fittings in ships.

Metal roofer is classified in unit group 9-53.50.

8-74 Structural Metal Preparers and Erectors

Workers in this unit group shape, assemble and erect heavy metal girders and plates to form structures or frameworks.

Their functions include:

marking metal members to guide in cutting, drilling and shaping them for use in buildings, ships and other structures;

drilling, cutting and shaping structural steel in a workshop;

erecting steel members for buildings, bridges and other constructions;

assembling and erecting framework and other metal parts of ships' structures;

shaping and fitting structural steel plates of ships under construction or repair;

riveting structural metal members by hand, machine or pneumatic hammer;

performing related tasks.

Blacksmiths, hammersmiths and forging-press operators are classified in unit group 8-31, *Welders and flame-cutters* in unit group 8-72 and *Reinforcing-iron worker* in 9-52.30.

8-74.20 Structural Metal Marker.

Marks metal members and heavy plates to guide workers cutting, drilling and shaping them for use in buildings, ships and other structures:

examines drawings and other specifications or lays template on metal sections; uses measuring instruments to locate positions for marks; marks location of holes, cuts and lines.

May make templates for use in marking. May specialise in marking steel members and plates for ship construction and be designated accordingly.

Metal marker (machine shop, metalworking) is classified in 8-32.50 and *Sheet-metal marker* in 8-73.20.

8-74.30 Structural Steel Worker (Workshop).

Drills, cuts and shapes steel in workshop for buildings, ships and other structures:

examines drawings and other specifications; cuts steel plates, angle irons and tubes, using power shears, flame-cutter or other equipment; drills holes for bolts and rivets.

May bend and otherwise shape plates. May complete subassemblies of structural members in workshop by riveting, bolting and welding.

Ship plater is classified in 8-74.55.

8-74.40 Constructional Steel Erector.

Performs various tasks in the erection of steel members and heavy plates for buildings, bridges, derricks and other structures (except ships):

examines drawings and other specifications; sets up hoisting equipment for raising and placing members; aligns and bolts members in position for riveting; drills or enlarges holes and smooths rough surfaces using pneumatic or electric tools.

May bolt, rivet or weld members together.

8-74.50 Metal Shipwright.

Assembles and erects framework and other metal parts of ships' structures:

makes identification marks on structural members according to drawings and other specifications, to guide assembly and erection; directs hoisting of members in position, ensuring accurate alignment; bolts members into position, for welding or riveting; installs deck plates, hatches and other metal parts.

May make templates for parts having a special shape.

8-74.55 Ship Plater.

Shapes and fits structural steel plates of ships under construction or repair:

examines drawings and other specifications; marks steel plates to guide shaping and fitting; cuts and bends plates and drills and punches holes in them, guided by markings or template; squares, bevels or scarfs edges of plates; fits plates in readiness for welding or riveting.

May heat plates before shaping.

8-74.60 Hand Riveter.

Rivets metal members such as plates, girders, columns and parts of smaller articles with hand hammer:

aligns parts where necessary; inserts rivets in predrilled holes or directs helper to do so; strikes rivet, which is held in position by helper by means of a heavy metal tool, with hand hammer to spread out rivet end; removes loose rivets by cutting off rivet head.

May drill and ream holes and caulk plates.

8-74.65 Machine Riveter.

Operates hydraulic or other rivet press which rivets steel plates, bars, beams or castings:

selects riveting dies and inserts them in machine: hoists plate or other workpiece into position and aligns dies and rivet holes; inserts rivets into holes or directs assistant to do so; regulates pressure of dies or distance between die and ram, according to size of rivets; starts machine to apply hydraulic pressure or to activate ram to spread out rivet ends.

8-74.70 Pneumatic Riveter.

Rivets metal members such as plates and girders using pneumatically operated hand hammer:

selects riveting die and inserts it in hammer; aligns parts and inserts rivets in holes, or directs helper to do so; holds hammer against rivet which is held in position by helper with a heavy metal tool; presses trigger of hammer to cause die to pound and spread out rivet end; removes loose rivets by cutting off rivet heads.

May drill and ream holes and caulk plates.

8-74.90 Other Structural Metal Preparers and Erectors.

This group includes other structural metal preparers and erectors not elsewhere classified, for example those who heat rivets in a furnace and pass them to rivet catcher or riveter.

8-8 JEWELLERY AND PRECIOUS METAL WORKERS

Workers in this minor group make and repair jewellery and precious metal ware, shape and set gems and engrave designs on jewellery and precious metal ware. They are classified in the unit group mentioned below:

8-80 Jewellery and Precious Metal Workers.

Workers who cast precious metal ingots are classified in unit group 7-24, and those who anneal precious metals in unit group 7-26.

8-80 Jewellery and Precious Metal Workers

Workers in this unit group make and repair jewellery and precious metal ware, cut and set gems and engrave designs on jewellery and precious metal articles.

Their functions include:

making complete jewellery articles such as rings, brooches and bracelets;

cutting and polishing gems and setting them in jewellery articles;

making and repairing precious metal ware;

rolling and beating precious metals;

engraving letters and designs on jewellery and precious metal ware;

performing related tasks.

8-80.10 Jeweller (General).

Makes complete jewellery articles such as rings, brooches and bracelets:

studies design and specifications, or prepares own design; prepares or makes mould; melts platinum, gold, silver or their alloys and pours into mould;

shapes moulded pieces, according to drawings or other specifications, by cutting, filing, beating, turning and bending; engraves letters and ornamental designs; forms prongs for stone settings; cuts, polishes and engraves gems and precious stones and secures them in settings; assembles finished parts of jewellery and attaches clasps or decorations by soldering or other means; smooths, coats and polishes metal surfaces.

8-80.20 Jewellery Repairer.

Repairs and remodels jewellery such as rings, brooches and bracelets:

enlarges or reduces size of rings by sawing through band and soldering ends after insertion or removal of piece; repairs broken clasps and other jewellery by soldering, replacing broken parts and building up worn or weak parts; reshapes jewellery according to designs and instructions, performing tasks similar to those of *Jeweller (general) (8-80.10);* smooths soldered joints and polishes article.

May make jewellery.

8-80.30 Gem Cutter and Polisher.

Cuts, shapes and polishes precious or semi-precious stones by hand and machine:

cuts stone to rough shape by sawing or cleaving; rounds off stone by holding it against another stone revolving in a lathe chuck; grinds stone by applying it against revolving wheel coated with abrasive; makes facets by pressing stone on horizontal revolving disc charged with diamond dust and oil; polishes stone with buffing wheel, applying polishing compounds.

May mount stone in holding agent for processing. May specialise in particular tasks or type of stone cut and be designated accordingly.

8-80.40 Gem Setter.

Sets precious or semi-precious stones in jewellery:

prepares settings to accommodate gems, and precious stones by cutting, filing, drilling and forming the metal; places stone in setting and secures it by bending inward holding prongs (claws) or forming a small ridge of metal around them; smooths and finishes setting.

May apply adhesive to setting to assist in securing stone. May specialise in type of setting or stone set and be designated accordingly.

8-80.50 Goldsmith and Silversmith.

Makes and repairs gold, silver, or other precious metal articles, or articles of pewter, such as tableware and artistic objects, using hand or power tools:

examines drawings and other specifications; selects metal of desired thickness and size; shapes articles by beating, bending and cutting; makes handles and spouts by beating metal into shape and soldering seams; pierces holes; engraves designs; assembles and solders parts; polishes articles by buffing and rubbing; repairs articles by beating out deformations and filling cracks or holes.

May prepare own designs. May specialise in particular metal or type of product and be designated accordingly.

8-80.60 Precious Metal Roller.

Operates a rolling machine which rolls ingots of gold or other precious metals into strips of specified thickness:

passes ingot through rollers of machine, adjusting them to obtain thickness desired.

May anneal before rolling. May draw precious metals. May specialise in metal worked and be designated accordingly.

8-80.70 Precious Metal Leaf Maker.

Beats gold or other precious metal strip to form thin leaves:

cuts metal strips to required shape and places them between sheets of skin or parchment to form a "book"; lays book on anvil and hammers it to reduce thickness of metal; removes metal sheets from book and cuts them into smaller pieces; interleaves sheets as before and hammers book again; repeats process until metal is reduced to leaf of extreme thinness.

8-80.80 Jewellery Engraver.

Cuts letters and ornamental designs on precious metal ware and jewellery:

mounts article in vice and rotates and tilts vice to obtain best operational angle; polishes surface of article; cuts letters or designs using engraving tools.

May work from own or prepared designs. May specialise in material or product engraved and be designated accordingly.

8-80.90 Other Jewellery and Precious Metal Workers.

This group includes jewellery and precious metal workers not elsewhere classified, for example those who decorate jewellery by colouring or enamelling; make and repair imitation jewellery; make wax and metal models and use these to make plaster moulds for casting items of jewellery.

8-9 GLASS FORMERS, POTTERS AND RELATED WORKERS

Workers in this minor group blow, mould, press and roll shapes from molten glass; cut, grind and finish glass; form ceramics products from clay and abrasives; operate furnaces and kilns to make glass, bake ceramics and anneal and temper glass; engrave, etch, paint and decorate glass and ceramics articles; perform other functions in the manufacture of glass and ceramics products. They are classified in the unit groups listed below:

8-91 Glass Formers, Cutters, Grinders and Finishers.
8-92 Potters and Related Clay and Abrasive Formers.
8-93 Glass and Ceramics Kilnmen.
8-94 Glass Engravers and Etchers.
8-95 Glass and Ceramics Painters and Decorators.
8-99 Glass Formers, Potters and Related Workers Not Elsewhere Classified.

8-91 Glass Formers, Cutters, Grinders and Finishers

Workers in this unit group blow, mould, press and roll shapes from molten glass and cut, grind and polish glass.

Their functions include:

shaping molten glass by means of blowpipe, press-moulding or blow-machine moulding, hand moulding, heating and bending;

operating machines to draw flat glass, draw glass tubes and rods and roll plate glass;

operating a machine to level and polish plate glass;

operating float-glass bath;

heating, moulding and pressing optical glass to make lens blanks;

grinding and polishing lens blanks;

grinding and bevelling edges of glass;

cutting sheet glass with hand tool and sawing prisms and other shapes from optical glass blocks;

performing related tasks.

8-91.20 Glass Blower.

Blows molten glass into shape by means of blowpipe:

dips end of blowpipe into molten glass, gathering amount required for object to be made; shapes glass by blowing into and manipulating pipe or by blowing glass into mould; detaches blown glass from blowpipe by breaking glass connection.

May work to drawings or other specifications. May specialise in making particular objects and be designated accordingly.

8-91.24 Scientific Glass Blower.

Shapes glass tubing by blowing and bending to make scientific apparatus such as retorts and flasks, measuring instruments and thermometers:

examines drawings and other specifications; heats tubing to viscous condition over a Bunsen burner, draws and blows heated tubing into shape by means of own breath or compressed air; bends and joins sections by heating over Bunsen burner and using special tools, continuing blowing to ensure bends and joints have correct thickness and diameter and to obtain invisible joint.

8-91.28 Glass-Blowing-Machine Operator.

Operates machine which shapes articles such as bottles and glass parts of valves and light-bulbs from molten glass by blowing:

adjusts weight of material emitted, machine speed and flow of compressed air according to requirements; ensures moulds are well lubricated; sees that operations are properly synchronised and that articles reach conveyor belt regularly; inspects samples of finished articles and makes adjustments necessary to rectify defects.

8-91.32 Glass Lens Moulder.

Shapes optical glass stock into lens blanks and shapes similar objects from glass discs by heating, moulding and pressing:

adjusts temperature of furnace to heat glass to required plasticity; places lump of optical glass on furnace floor, shapes heated glass between hand paddles to approximate form in order to avoid excessive strain in glass, removes it from furnace, places it in press and operates press to mould lens blanks; shapes glass articles, for example automobile lamp lenses, by placing glass discs in moulds and heating in furnace for time required for glass discs to take the shape of the mould; moulds standard lens blanks, including instrument and watch crystals, from heated squares of glass by power press equipped with spoon die and ram; places moulded glass in containers for cooling.

8-91.36 Glass-Pressing-Machine Operator.

Operates a machine which forms glass objects by pressure-moulding:

shears proper amount of molten glass into mould from end of iron rod held by assistant; pushes mould to centre of press; moves lever to press plunger into molten glass; withdraws plunger when glass is set; opens mould and releases glass object by using pincers or reversing mould.

May maintain press in good order.

8-91.40 Glass-Drawing-Machine Operator.

Operates a glass-drawing machine by which molten glass is drawn as a continuous sheet of flat glass:

sets rheostat to control speed of kiln rolls that draw glass sheet of specified thickness; regulates gas-firing of edges of glass sheet to prevent slippage of sheet from guide wheels; observes glass sheet through kiln peephole to detect defects, such as stones and blisters; opens or directs opening of rolls to allow passage of defective area to prevent break in sheet.

May operate a vertical or horizontal drawing machine and be designated accordingly.

8-91.44 Plate-Glass Rollerman.

Sets and operates machine to roll molten glass into sheets:

positions glass-rolling machine between melting furnace and lehr, using power winch; connects chain drive to rollers and cooling pipes to waterline; opens gate on furnace to start flow of molten glass to rollers; regulates thickness of glass by raising or lowering upper roller and adjusts rheostat control to set speed of rollers; observes glass for defects, such as blisters and surface adhesions.

May adjust movement of metal mesh when such material is being automatically embedded in the glass.

8-91.48 Plate-Glass Polisher.

Operates a machine to polish and level plate-glass surfaces:

positions plate-glass on machine bed; sets polishing heads according to thickness required; starts machine and adjusts rate of flow of abrasive mixture through polishing heads.

May operate machine to polish plate-glass surfaces completely parallel.

8-91.52 Float-Glass Bath Operator.

Controls apparatus in which surface finish is given to a ribbon of glass by floating it on molten metal:

observes instruments and regulates burners to maintain molten metal at required temperature; regulates flow of molten glass from furnace onto metal; observes glass to ensure that it receives desired surface finish; notes defects and makes appropriate adjustments to apparatus.

8-91.56 Glass Cutter.

Cuts sheet glass by hand to prescribed dimensions or according to pattern, using a glass-cutting tool:

places, or has placed, sheet of glass on cutting table against guiding edge; cleans places to be cut; marks off measurements, pattern or template on glass; draws cutting tool around pattern or along straight edge; detaches excess glass by hand or pincers.

8-91.60 Optical Glass Cutter.

Cuts shapes from block of optical glass with a diamond-toothed saw, for use as lenses, prisms, mirrors and other optical elements of precision instruments:

inspects glass blocks for defects such as bubbles, cracks or striae; clamps block in machine holder; starts machine, brings glass in contact with saw blade and cuts it according to markings on glass; removes cut piece from machine holder.

May mark off glass. May cut pieces of optical glass to specified dimensions for moulding into lens blanks.

8-91.64 Glass Edge Grinder.

Smooths and bevels edges of glass:

regulates flow of abrasive compound and water on metal disc, or flow of water on grinding wheel or belt sander; presses and turns edges of glass against revolving grinding tools to smooth or bevel edges.

8-91.68 Lens Grinding-Machine Operator.

Sets up and operates a battery of machines which grind surfaces of lens blanks to desired specifications:

selects grinding disc with required dioptric curve and secures it to spindle of machine; positions against disc block on which lens blanks are mounted; starts machine and periodically applies emery, rouge or other abrasive to disc during grinding process; removes block from machine after specified time and examines blanks for defects.

May mount blanks on metal block.

8-91.72 Lens Polishing-Machine Operator.

Sets up and operates a battery of machines which polish surfaces of lens blanks to a high lustre:

selects polishing disc with required dioptric curve and secures it to spindle of machine; positions against disc block on which lens blanks are mounted; starts machine and applies rouge abrasive to disc periodically during polishing process; removes block from machine after specified time and examines blanks for defects.

May remove blanks from metal blocks and glue felt pad to disc.

8-91.76 Glass Tube Maker.

Operates a machine to make glass rods and tubes from molten glass by drawing or drawing and blowing:

starts machine and observes rotation speed of chuck and drawing and blowing mechanisms to ensure that operations proceed correctly; sets and regulates glass-cutting mechanism that cuts rods and tubes to specified dimensions; notes defects and makes appropriate adjustments to machine.

8-91.80 Glass Tube Bender.

Heats and bends glass tubing for making neon signs and other articles:

examines drawings and other specifications; tacks asbestos pattern on workbench; heats tube to viscous condition over Bunsen burner at point where bend is desired; blows air through tube, by mouth or compressed air, to prevent it collapsing and bends tube; places tube on asbestos pattern to check bend and reheats and modifies bend if necessary; joins sections by heating over Bunsen burner and using special tools, continuing blowing to ensure joints have correct thickness and diameter and to obtain invisible joint; finishes glass tubing electric signs by colouring, sealing and fusing electrodes in ends.

8-91.90 Other Glass Formers, Cutters, Grinders and Finishers.

This group includes glass formers, cutters, grinders and finishers not elsewhere classified, for example those ladling molten glass into moulds; gathering required quantities of molten glass on end of metal rod and handing it to other workers; putting legs and feet on glass articles; making laminated glass and vacuum flasks; operating automatic machines that cap (score and break) flat glass into sections of specified dimensions; operating a lathe to grind glass articles for use in laboratory apparatus or to cut, shape and seal glass bulbs used in manufacture of electronic valves or tubes.

8-92 Potters and Related Clay and Abrasive Formers

Workers in this unit group make pottery, porcelain ware, bricks, tiles and abrasive wheels.

Their functions include:

making articles of pottery and porcelain completely;

making clay or plaster-of-Paris models of pottery and porcelain ware for use in preparing moulds;

making plaster-of-Paris moulds;

forming ware on potter's wheel with hands, or using interior or exterior moulding shapes and shaping tools;

forming ware by casting semi-liquid clay in plaster-of-Paris moulds;

forming bricks and tiles of special shapes by hand;

making ware by pressing plastic clay into moulds by hand;

operating screw-press or hydraulic press to make products from clay dust;

operating a machine which extrudes moist clay for further processing;

forming abrasive wheels by moulding or pressing abrasive mixture;

performing related tasks.

8-92.10 Potter (General).

Makes completely pottery and porcelain ware by various methods:

makes clay or plaster-of-Paris models for use in preparing moulds; makes moulds of plaster of Paris; forms ware by moulding clay with hands as it revolves on potter's wheel; operates a lathe on which dry, unbaked ware is shaped by hand tools; forms ware by casting semi-liquid clay (slip) into plaster-of-Paris moulds; forms ware by pressing damp, plastic clay into shape of mould; decorates, glazes and bakes pottery and porcelain ware.

8-92.15 Pottery and Porcelain Modeller.

Makes clay or plaster-of-Paris models of pottery and porcelain ware for use in preparing moulds:

examines drawings and specifications; makes model by carving plaster or clay, by shaping material on a potter's wheel or on a lathe, or by other methods.

May create own designs. May specialise in modelling a particular type of product.

8-92.20 Pottery and Porcelain Mould Maker.

Makes plaster-of-Paris moulds for the manufacture of pottery and porcelain ware:

takes model of article to be made and sets it in clay so that only one half is exposed; applies soap solution to exposed half of model; sets wooden form around model; pours liquid plaster of Paris over model to make one half of master mould (block mould); turns mould over when dry, removes clay and applies soap solution to other half of model; sets wooden form as before and pours in plaster to form other half of block mould; casts a replica of model (case mould), using block mould as pattern; casts a number of working moulds, using case mould as pattern.

8-92.25 Pottery and Porcelain Thrower.

Forms pottery or porcelain ware by moulding clay with hands as it revolves on potter's wheel:

sets ball of pliable clay on wheel; rotates wheel by foot treadle or by machine; centres clay on wheel by pressure of hands, softening it by manipulation and sprinkling water on it; moulds clay into desired shape.

May make large ware by moulding separate sections and joining them together.

8-92.30 Pottery and Porcelain Jiggerman.

Forms pottery ware by operating semi-automatic potter's wheel set up for repetitive work:

clamps mould, covered with flat sheet of clay, upon potter's wheel; selects shaping tool according to desired shape of ware and bolts it in position; sets automatic stop to obtain desired thickness of ware; starts wheel revolving, lowers tool to pare clay and shape the pottery ware; applies wet sponge as necessary to keep clay in condition for shaping; removes finished article from machine.

8-92.35 Pottery and Porcelain Caster (Hand).

Forms pottery and porcelain ware by casting semi-liquid clay (slip) in plaster-of-Paris moulds:

fills pitcher with slip and pours it into mould; pours excess slip from mould after a clay shell of desired thickness has formed inside mould; sets full mould upside down on bench to dry; trims top of partly dry ware with knife; opens mould and removes ware; scrapes ware with knife-like tool, sponges it and sets it on drying rack ready for kiln.

8-92.40 Brick and Tile Moulder (Hand).

Moulds bricks and tiles, particularly those with special shapes, by hand:

applies thin coating of oil or clay dust or both to inside of mould to prevent moist clay from adhering to it; kneads moist clay on bench until it is of desired consistency and places or throws it into mould; presses clay firmly into mould by hand, tamping it with a mallet or a pneumatic ramming tool; scrapes off projecting clay with float or trowel or by drawing a wire across it; allows clay to remain in mould for short time to dry and shrink; turns out moulded brick or tile for removal to drying chamber.

8-92.45 Pottery and Porcelain Presser (Hand).

Forms pottery and porcelain ware by pressing damp, plastic clay by hand into shape of a mould:

places sheet of clay (bat) on mould; smooths clay down on mould, raising an edge of clay to let air escape; trims edges of clay with hand tool until it fits mould properly; presses outside of clay into proper form with specially shaped piece of wet sheet rubber; sets article aside to dry.

Usually makes oval, square or irregularly shaped articles.

8-92.50 Pottery and Porcelain Die-Presser.

Operates a screw-press or hydraulic press to make pottery or porcelain ware from clay dust:

inserts steel die into press; pours moistened clay dust into press; operates press to form articles such as electrical insulators and wall tiles; takes finished articles out of press.

8-92.55 Clay Extruding-Press Operator.

Operates a machine in which moist clay is extruded in strips for further processing:

feeds moist clay into machine; moves lever to regulate speed of worm which forces clay through outlet; examines clay periodically as it is extruded and notifies other workers as necessary to change moisture content of clay before it enters press.

8-92.60 Abrasive Wheel Moulder.

Forms abrasive wheels by moulding and pressing an abrasive mixture by hand or machine:

selects mould of size and thickness of wheel to be made; fills mould with required quantity of abrasive mixture and binding material; puts mould in press, starts press and applies required pressure or compresses mixture in mould by hand; withdraws moulded wheel and allows to dry.

May prepare abrasive mixture and mix it by machine.

8-92.90 Other Potters and Related Clay and Abrasive Formers.

This group includes potters and related clay and abrasive formers not elsewhere classified, for example those who operate a hand press to mould clay bricks and tiles; smooth and trim pottery with hand tools; prepare clay blocks for use in presses; drill holes in clay ware; or operate machines to cut strips of clay into bricks or tiles.

8-93 Glass and Ceramics Kilnmen

Workers in this unit group operate furnaces and kilns in the manufacture of glass and ceramics products.

Their functions include:

operating a glass-making furnace;
operating a glass-annealing furnace to prevent or remove internal stresses;
operating a tempering furnace to toughen glass;
operating kiln to bake pottery and porcelain ware or to bake ware again to fix glazing and decoration;
operating kiln to bake bricks and tiles;
performing related tasks.

8-93.20 Glass-Making Furnaceman.

Operates furnace to melt and fuse premixed ingredients to make glass:

pulls lever to dump mixture of ingredients, such as sand, soda, potash and cullet (waste glass) into furnace; heats furnace and observes meters, gauges, and charts to determine air, gas and water pressure and air-gas ratio; observes pyrometer to determine furnace temperature and adjusts water, air and gas feed to maintain specified temperature; observes melting process and ensures that level of molten glass is maintained at optimum height in furnace.

May specialise in operating a particular type of furnace or in making a particular kind of glass, such as optical glass, and be designated accordingly.

8-93.30 Glass-Annealing Furnaceman.

Operates annealing kiln or furnace to prevent or remove internal stresses from glass or glassware:

supervises placing of glass articles in furnace or adjusts conveyor speed of automatic furnace; sets furnace controls; observes glass or glass ware emerging from furnace for defects indicative of faulty loading or incorrect furnace temperature.

8-93.40 Glass Temperer.

Tempers sheet glass to relieve stresses and harden it:

fires furnace and adjusts controls to maintain specified temperature; suspends glass from clips and lowers it into furnace; removes softened glass from furnace and places it between jets of cold air to cool it rapidly or, if glass is to be curved, presses it between shaping moulds before cooling.

May tend automatic machine to temper glass.

8-93.50 Pottery and Porcelain Kilnman.

Operates kiln to bake pottery, porcelain ware and other refractory products (other than bricks and tiles) and to rebake them after glazing and decoration:

supervises loading of kiln; directs construction of temporary casing doors and ensures that openings are sealed; fires furnace and adjusts air draught and fuel feed to regulate temperature; observes pyrometric cones and meters to determine temperature of kiln and decides when baking is completed.

May specialise in operating a particular kind of kiln and be designated accordingly.

8-93.60 Brick and Tile Kilnman.

Operates kiln to bake bricks and tiles to proper hardness:

sees that bricks and tiles have been stacked correctly; starts gas or oil fires by lighting burners, or instructs other workers to kindle fire; regulates draught and fuel feed to maintain kiln at correct temperature; observes meters or pyrometric cones to determine when baking is completed.

May specialise in operating particular type of kiln and be designated accordingly.

8-93.90 Other Glass and Ceramics Kilnmen.

This group includes glass and ceramics kilnmen not elsewhere classified, for example those who load kilns before and unload kilns after firing pottery, porcelain, sanitary ware and refractory products; assist in the preparation and firing of kilns.

8-94 Glass Engravers and Etchers

Workers in this unit group engrave and etch designs on glass articles.

Their functions include:

engraving monograms and ornamental designs on glassware with grinding wheel;

etching decorative designs, calibration markings and other figures on glass articles;

cutting designs on glass articles with sand-blasting equipment;

performing related tasks.

8-94.20 Glass Engraver.

Engraves monograms and ornamental designs on glass or crystal ware, using copper, steel or stone grinding wheels:

traces or stencils design or marks reference points on article; mounts wheel of specified width and diameter on machine; starts machine and holds glassware against wheel, turning and twisting article so that wheel grinds the glass according to the sketched design; changes wheels to make cuts of different sizes; polishes article with fine abrasives, using buffing wheel.

May dress and shape cutting wheels by holding dressing stone against rotating wheel.

8-94.30 Glass Etcher.

Etches decorative designs, calibration markings, numerals and other figures on glass articles with acid:

cuts design or other markings through wax cover on glass article; prepares acid bath; dips glass into acid bath or exposes it to acid fumes to erode portion of glass not covered with wax; rinses etched glass in cold water to remove acid and in hot water to remove wax.

May coat articles with wax.

8-94.40 Glass Sandblaster.

Cuts designs in surfaces of glass articles with sand-blasting equipment:

transfers drawing of design to outer side of adhesive tape; covers glass with tape and cuts design out of tape with knife to uncover area of glass to be sand-blasted; operates compressed-air gun which blows fine sand against uncovered glass and cuts design; removes protective tape from glass.

8-94.90 Other Glass Engravers and Etchers.

This group includes glass engravers and etchers not elsewhere classified, for example those who cover glass with wax prior to etching operations; operate pantograph devices to cut designs in surface of glass articles; cut glass into decorative shapes; mark out glass objects for cutters and other workers; immerse glass articles in acid bath to give clear polish to decorations; or etch patterns and borders on glazed ware.

8-95 Glass and Ceramics Painters and Decorators

Workers in this unit group decorate glass and ceramic articles.

Their functions include:

painting designs with a brush on glass, pottery, porcelain ware and tiles;

transferring designs onto pottery and porcelain ware by using stencils, transfers, rubber stamps and other means;

spray-painting pottery, porcelain ware and tiles, and spraying liquid glaze on large pieces;

covering biscuit ware with glaze solution by dipping;

coating mirror glass with silvering solutions;

performing related tasks.

8-95.20 Glass Painter.

Paints decorative designs on glass articles with a brush:

mixes paints, such as enamels and precious metals, in solution or uses ready-prepared colours; places article to be painted on work bench and applies colours with a brush according to pattern;

May finish stencilled, stamped or other transferred designs by hand-painting outlines and correcting defects. May place article in furnace at required temperature and for prescribed period to harden and fix the decoration.

Sign-painter is classified in 9-39.50.

8-95.30 Ceramics Painter.

Paints designs on pottery, porcelain ware and tiles with a brush:

performs tasks similar to those of *Glass painter (8-95.20)* but specialises in painting pottery, porcelain ware and tiles by hand.

8-95.40 Ceramics Decorator.

Transfers designs onto pottery and porcelain ware by using stencils, transfers, rubber stamps and other means:

applies colours to articles to be decorated by such methods as spraying paint through stencils and applying rubber stamps or transfers; places decorated articles on rack to dry.

8-95.50 Ceramics Spray-Painter.

Sprays paint on pottery, porcelain ware, bricks and tiles, or sprays liquid glaze on large pieces not suitable for dipping:

fills container of spray-gun with paint or glaze of required colour; fixes container to spray-gun and couples gun to air hose; presses trigger and directs spray of liquid over surfaces of objects; places ware on rack to dry; cleans spray-gun and hose with solvent.

May use stencils for spray-painting designs.

8-95.60 Ceramics Dipper.

Covers biscuit ware with glaze solution by dipping:

grasps article such as dish, plate or saucer with fingers or tongs and dips it in tub containing liquid glaze; removes it from tub, turns article to ensure even coating and throw off excess glaze; places ware on rack to dry and rubs glaze over spots touched by fingers or tongs; removes excess glaze from dry ware by rubbing it with buffing wheel or other implement.

May apply glaze with brush or sponge.

8-95.70 Mirror Silverer.

Coats new and old mirror glass with silvering solutions:

weighs and mixes ingredients according to formula; lays cleaned mirror glass on silvering table; covers surface of glass with silvering solution; cleans, rinses and dries surface; coats dry mirror with shellac to protect silvering.

May apply silvering solution with spray-gun.

8-95.90 Other Glass and Ceramics Painters and Decorators.

This group includes glass and ceramics painters and decorators not elsewhere classified, for example those who coat ware or parts of ware with oil and dust oiled surface with powder colour; draw lines on ceramic ware to guide other workers in applying coloured glaze and other decorations; polish gold-decorated ware by scouring with fine sand and finishing it with agate or bloodstone; or tend machines conveying ware through glaze sprays, dipping troughs and drying rooms.

8-99 Glass Formers, Potters and Related Workers Not Elsewhere Classified

Workers in this unit group perform tasks in glass forming and ceramics making, baking, decorating and finishing not classified elsewhere.

Their functions include:

mixing ingredients for glass making;

preparing clay by milling and mixing machine;

making clay slip;

making glaze;

mixing abrasives;

operating a machine to extrude molten glass into fibreglass filaments;

performing other tasks in making and finishing glass and ceramics products.

8-99.20 Glass Mixer.

Weighs and mixes sand, soda, potash and other materials used in glass making:

sets weighing machine according to instructions for batch mix required; weighs quantities of ingredients required; notes degree of humidity of sand and corrects weights accordingly; dumps weighed materials in mixing drum hopper and rotates drum; transfers batch mix from drum to wagon for conveying to furnace; starts conveyors to replenish supplies of materials in hoppers.

May weigh and add small quantities of special additives, such as carbon, arsenic and pyrites. May operate automatic integrated weighing and mixing machine, observing panel control lights and switching to manual control when necessary to maintain required proportions of the different ingredients.

8-99.30 Clay Mixer.

Operates machine in which clay is ground, mixed and tempered for use in ceramics manufacture:

regulates flow of material and water to machine; examines by sight and touch the consistency of plastic clay coming from machine by conveyor belt or chute; makes minor adjustments to machine to alter degree of fineness of grinding or water content of clay.

8-99.40 Clay Slip Maker.

Operates a machine in which clays are mixed into a semi-liquid form (slip) for making ceramic products:

regulates flow of materials to mixer; starts mixer and allows it to run for specified time; pumps slip over magnets to remove iron or steel particles and then through filter-press to remove excess water; regulates flow of slip by means of valve; cleans filters and magnets with water as required.

8-99.50 Glaze Maker.

Mixes, grinds, fuses and regrinds ingredients such as borax, lead, sand and lime to make glaze:

weighs materials, dumps them into grinding mills and grinds them for specified time; drains mixture, passes it through screens and heats it in kiln for specified time to fuse it; grinds fused material (frit) into fine powder and mixes it with water to form slop for use in dipping process.

8-99.60 Abrasives Mixer.

Mixes ingredients by machine to make grinding or polishing compounds:

fills machine with specified ingredients by opening and closing valves; starts machine; runs machine until ingredients are thoroughly mixed; stops machine and removes mixture.

8-99.70 Fibreglass Maker.

Operates a machine to extrude molten glass through a die to form fibreglass filaments:

sets and maintains furnace temperature; starts machine and observes passage of glass over drawing apparatus to detect defects such as beads or breaks; clears obstructions from die using wire pick; notes defects and makes appropriate adjustments.

8-99.90 Other Glass Formers, Potters and Related Workers.

This group includes glass formers, potters and related workers not elsewhere classified, for example those who operate filter-presses to remove excess water from clay; operate and supervise loading of battery of pans and screens used for grinding and sifting clay; or tend machines which remove air bubbles from wet clay.

9-0 RUBBER AND PLASTICS PRODUCT MAKERS

Workers in this minor group knead and blend raw rubber and rubber compounds and make articles, such as industrial accessories, footwear, domestic articles, sports and life-saving equipment and pneumatic tires, from natural and synthetic rubber and plastics, by extruding, moulding, laminating and vulcanising. They are classified in the unit groups listed below:

9-01 Rubber and Plastics Product Makers (except Tire Makers and Tire Vulcanisers).

9-02 Tire Makers and Vulcanisers.

Makers of sewn and stitched garments, gloves, furniture coverings and trimmings of rubber, rubberised or plastic materials are classified in minor group 7-9. Workers treating crude rubber (latex) to coagulate and cure (smoke) it are classified in 7-49.90.

9-01 Rubber and Plastics Product Makers (except Tire Makers and Tire Vulcanisers)

Workers in this unit group knead and blend raw rubber and rubber compounds and work natural and synthetic rubber and plastics in the manufacture of such products as moulded footwear, domestic articles, toys, sporting equipment, insulating materials, industrial accessories and life-saving equipment.

Their functions include:

kneading, mixing and blending raw rubber and rubber compounds for further processing;
producing sheets of rubber or rubberised fabric by a rolling process;
operating machines extruding compounded rubber;
shaping uncured rubber by moulding;
assembling domestic and other rubber goods;
shaping plastic materials by injection-moulding, compression-moulding and extrusion;
laminating plastics or plastic-impregnated materials;
assembling or fabricating plastics products; and performing related tasks.

9-01.20 Rubber Millman.

Operates a machine which kneads, mixes, blends or warms raw rubber or rubber compounds for further processing:

adjusts steam and water valves to regulate heat of machine rollers, judging heat by touch; starts machine and feeds stock through rollers to squeeze and knead the material; adjusts scraper blade on machine to remove sheet rubber adhering to roll or removes it by hand; folds and refeeds sheets between rollers, as necessary to complete kneading, mixing or warming process.

May wash or crack crude rubber by passing it through corrugated mill rolls and water spray. May weigh and measure liquid and dry chemicals and sprinkle them over rubber as it is kneaded.

9-01.25 Rubber Calender Operator.

Operates a machine which produces sheets of rubber or rubberised fabric by a rolling process:

adjusts steam valves to regulate heat of machine rollers, judging heat by touch and by observing reaction of rubber; sets thickness gauge by turning hand-wheels; starts machine, feeds it with chunks of rubber and, where appropriate, threads fabric through rollers; tests thickness of product with gauge and makes necessary adjustments; supervises helpers who load and unload material from machine.

May operate special type of calender which also laminates rubber by combining two continuous sheets of material and be designated accordingly.

9-01.30 Rubber Extruding-Machine Operator.

Sets up and operates a machine in which compoundep rubber is extruded through heated die to form continuous shaped strip:

selects die and fits it to machine; turns steam valve to heat die to required temperature; feeds chunks of rubber into hopper of machine; starts machine which forces rubber through die; adjusts controls to synchronise speed of conveyor belt with speed of extrusion of rubber.

May operate special types of extruding machines and be designated accordingly.

9-01.35 Rubber Moulding-Press Operator.

Operates a machine in which soft, uncured rubber is shaped in mould and vulcanised by steam heat:

places uncured rubber between upper and lower dies of mould; inserts mould in press; turns valve to lower ram on mould and to apply pressure and steam heat simultaneously; removes mould from press after specified length of time; opens dies and removes formed pieces with tongs or by hand; removes rind from moulds, using air-hose or steel wool.

May operate press in which rubber is injected into moulds. May be designated according to articles moulded.

Tire moulder is classified in 9-02.30.

9-01.40 Rubber Goods Assembler.

Assembles rubber goods such as water bottles, ice bags, toys, ring cushions and sports articles from fabricated parts:

stretches moulded opening in goods to insert parts and accessories; clamps on buckles, straps and accessories with pneumatic or hand tools; wraps fabric tape around inserted closures and valves and stretches band of rubber over tapes; cements valves, closures and seams.

May be designated according to product assembled.

9-01.50 Plastics Injection-Moulding-Machine Operator.

Sets up and operates machine in which plastic materials are shaped by injection-moulding:

fixes mould in machine; sets thermostat to obtain specified moulding temperature; loads pre-mixed plastic materials into hopper; operates machine to close, and inject material into, mould; removes finished product from mould with hand tools; trims off excess material with knife.

May mix materials and colouring pigments according to formula in mixing machine. May grind scrap plastic into powder for reuse.

9-01.55 Plastics Compression-Moulding-Machine Operator.

Sets up and operates machine in which plastic materials are shaped by compression-moulding:

fixes mould in machine; sets thermostat to obtain specified moulding temperature; pours pre-mixed plastic compound into mould, or spreads fabric on mould and puts compound over fabric; operates machine to lower hydraulic ram which compresses compound in mould to form and cure part; removes cured part from mould, using hand tools and air-hose.

May mix catalysts and colouring pigments with plastic compound, using paddle and mixing machine.

9-01.60 Plastics Extruding-Machine Operator.

Sets up and operates a machine in which plastic materials are extruded through a die to form continuous rods, tubes, strips and other products:

selects die and fits it to machine; connects hose to circulate steam, water, air or oil to die holder; fills machine hopper with dry or dough-like plastics and starts machine; synchronises speed of conveyor belt with speed of extrusion through die; inspects extruded product and makes necessary adjustments to obtain desired form; supervises workers cutting off or winding extruded material.

9-01.65 Plastics Laminator.

Operates a machine in which layers of plastics or plastic-impregnated materials are heated and pressed to form a solid laminated product:

assembles layers of materials; places assembled layers between plain or engraved metal plates and inserts them in machine press; operates controls to apply the heat and pressure required to consolidate layers and to impart desired finish; removes laminated product and inspects it for defects.

9-01.70 Plastics Products Assembler.

Performs marking, cutting, sealing and trimming tasks in the assembly of plastics products, such as bags and inflatable toys:

marks cutting lines of sections to be assembled on plastic sheet; cuts sections from sheets, using knife, scissors or power-cutting machine; positions sections on jig and aligns seams and air valves; brushes glue along edges of sections, seals edges with hot iron or electric sealing machine, and trims edges with scissors; examines articles for defects and takes remedial action; cleans markings and dirt from articles.

9-01.80 Plastics Products Fabricator.

Fabricates plastics articles, such as signs, aircraft parts and window awnings:

lays out cutting lines on plastic sheet; cuts parts from sheet, using router or band-saw; softens plastic in oven and moulds part to shape on form or jig; cuts, drills and trims parts, using router, milling machine, power saw and lathe; fits and assembles parts, using jigs, clamps, files and glue; sands and polishes parts, using portable sanding and buffing machines.

9-01.90 Other Rubber and Plastics Product Makers (except Tire Makers and Tire Vulcanisers).

This group includes rubber and plastics product makers (except tire makers and tire vulcanisers) not elsewhere classified, for example those who coat fabric and other products with rubber by rubber-spreading machine or by immersing them in rubber solutions; operate presses which emboss rubber or cut it to shape; operate machines for the fabrication of foam rubber or latex articles; operate machines for cold vulcanisation processes; grind, buff, burr, polish, drill and otherwise finish plastics by hand or machine; operate and control ovens (curing pots) to vulcanise rubber goods (except tires) by means of pressurised steam; operate other specialised equipment for fabricating particular rubber or plastics products.

9-02 Tire Makers and Vulcanisers

Workers in this unit group make pneumatic tires for vehicles such as bicycles, automobiles, tractors and aircraft.

Their functions include:
building up tires on a form;
curing tires in mould;
rebuilding used tires;
performing related tasks.

9-02.20 Tire Builder.

Builds up pneumatic tires on a form:

wraps layers of rubberised fabric around form as it is turned by hand or machine; presses layers together and guides them to shape of form by means of hand roller or other hand tool; places beading on edge of fabric layers and folds fabric evenly around it; winds on cushion band, rubber side walls and tire tread; trims tire, removes it from form and places it to one side in readiness for moulding and vulcanising (curing).

9-02.30 Tire Moulder.

Moulds and cures (vulcanises) pneumatic rubber tires in pot heater or watchcase mould:

places moulds containing green tires in pot heater, using hoist, or places tires containing air bags in watchcase mould press; couples steam hose to air bag in mould to expand tire; pushes switch or pulls lever to close and lock cover; opens steam valve and sets timer for specified curing time; lifts moulds from pot heater or cured tires from watchcase mould and places them on hand-truck or conveyor.

May be designated according to type of mould used. May also cure air bags and inner tubes.

Moulders of reconditioned tires are classified in 9-02.40.

9-02.40 Tire Rebuilder.

Operates machines to recap or retread used tire casings:

pushes tire against power buffing wheels, using tire holder to prepare tire for recapping or retreading; builds new tread onto buffed casing, using brush or spray gun to apply tire cement; rolls tread to bond it to casing; operates mould that vulcanises tread onto tire and moulds tread design.

May perform separate tasks of buffing, retreading or moulding and be designated accordingly.

9-02.90 Other Tire Makers and Vulcanisers.

This group includes tire makers and vulcanisers not elsewhere classified, who perform specialised tasks in fabrication of pneumatic tires, other than tire moulding, building or rebuilding.

9-1 PAPER AND PAPERBOARD PRODUCTS MAKERS

Workers in this minor group make boxes, envelopes, bags and other products from paper, paperboard, cardboard, cellophane and similar materials. They are classified in the unit group mentioned below:

9-10 Paper and Paperboard Products Makers.

9-10 Paper and Paperboard Products Makers

Workers in this unit group make boxes, envelopes, bags and other products from paper, paperboard, cardboard, cellophane and similar materials.

Their functions include:

making and decorating paper boxes by hand or machine;

setting and operating machines which glue paper to cardboard, cut it to required length or cut and crease cardboard or paperboard sheets to form box blanks;

operating machines which press paper to form drinking cups and other containers;

setting and operating machines which cut, fold and glue paper to make envelopes and paper bags or which form bags from cellophane, special types of paper and similar materials;

performing related tasks.

9-10.20 Paper Box Maker (Hand).

Makes and decorates paper boxes by hand:

cuts cardboard or paperboard blanks to required shape; folds and glues or clips pieces together to form box; covers boxes by gluing protective or decorative paper.

May fix paper lace or partitions in box.

9-10.30 Paper Box Maker (Machine).

Sets and operates various machines which cut, fold, and glue or clip paper and cardboard to make boxes and other articles:

adjusts feeding devices according to size of article to be made; adjusts mechanism controlling cutting, folding, gluing and clipping operations; starts machine and feeds blanks into machine; ensures that operation is proceeding correctly and makes necessary adjustments.

May set machines only and supervise operators.

9-10.40 Cardboard Lining-Machine Operator.

Sets and operates machine which glues paper to cardboard and cuts it to required length:

regulates distance between feeding and gluing rollers and sets shears to cut required length; fills glue reservoir of machine; threads paper from roll through guide and gluing rollers; regulates temperature of heated rollers and starts machine; feeds cardboard blanks into machine rollers; examines boards to see they have been lined and cut correctly and makes necessary adjustments to machine.

May mix glue solution.

9-10.50 Paper Box Cutting- and Creasing-Press Operator.

Sets and operates machine which cuts and creases cardboard and paperboard sheets to form box blanks:

sets die in machine and performs other preparatory tasks according to type of machine; starts machine and feeds sheets into press; folds or bends cut and creased sheets periodically to determine conformity to specifications and makes necessary adjustments to machine.

May set and operate machine also equipped to print information or decoration on box blanks.

9-10.60 Cardboard-Press Operator.

Operates machine which presses paper to form drinking cups and other containers:

installs dies in machine; starts machine; regulates controls to heat lower die and moisten paper; ensures cardboard sheets are fed regularly into machine; observes operation to detect faults; removes completed articles and waste material.

9-10.70 Paper Bag and Envelope Maker (Machine).

Sets and operates machine which cuts, glues and folds paper to make envelopes and paper bags:

fills glue reservoir; sets cutting, gluing and folding devices and automatic counter; feeds blank sheets or roll of paper into machine; starts machine and observes operation; examines finished products for conformance to standards and makes necessary adjustments to machine.

May set and operate machine also equipped to print on envelopes and paper bags.

9-10.80 Cellophane Bag Maker (Machine).

Sets and operates machine which forms bags from cellophane, special types of paper and similar materials:

sets metal form on which bag is shaped into machine; loads roll of cellophane, waxed paper or similar material on machine spindle; threads material through cutting, gluing and folding devices; adjusts machine to obtain bags of specified sizes; starts machine, observes operations and makes necessary adjustments.

May also set and operate machine equipped to print information or decorations on bags.

9-10.90 Other Paper and Paperboard Products Makers.

This group includes paper and paperboard products makers not elsewhere classified, for example those who make suitcases with specially treated cardboard; operate machines making paper caps, garlands and other paper novelties and paper tubes; make envelopes by hand; glue decorative and protective paper on surfaces of completed boxes; check and put together sets of playing cards.

9-2 PRINTERS AND RELATED WORKERS

Workers in this minor group compose type, cast and engrave printing plates and operate printing presses to print text and illustrations on paper, metal, cloth or other material; bind books; develop and print photographic still and motion-picture films; perform other related tasks. They are classified in the unit groups listed below:

9-21	Compositors and Type-Setters.
9-22	Printing Pressmen.
9-23	Stereotypers and Electrotypers.
9-24	Printing Engravers (except Photo-Engravers).
9-25	Photo-Engravers.
9-26	Bookbinders and Related Workers.
9-27	Photographic Dark-Room Workers.
9-29	Printers and Related Workers Not Elsewhere Classified.

Proof reader is classified in 3-99.40.

9-21 Compositors and Type-Setters

Workers in this unit group set and arrange printing type by hand and machine.

Their functions include:

setting type by hand and printing copies with small machine;

setting type by hand;

operating linotype, monotype and type-casting machines;

arranging set-up of type and spacing material and illustration blocks to make pages;

arranging pages in sequence for printing;

operating keyboard of machine which reproduces letters on film or sensitised paper for photographic reproduction plates;

performing related tasks.

9-21.10 Printer, General.

Sets type and operates a small printing machine:

sets type by hand in composing stick and forms galley; prints proof, checks it for errors and makes corrections; arranges set-up type to form a sequence of pages and locks in chase; sets and operates a small cylindrical or flat-bed letterpress to print required number of copies.

May print such items as letterheads, address cards and handbills.

9-21.20 Hand Compositor.

Sets type by hand for printing:

examines manuscript to determine length of lines and type to be used; adjusts guide in composing stick to required length of lines; reads copy, selects type, arranges it in stick and inserts spaces to form line; places leads between lines; slides lines onto galley when composing stick is full or when set-up is complete and passes galley on for proof printing; examines corrected proof, makes necessary alterations to type or set-up and sends to pressman; distributes type into proper compartments after use.

May print and correct own proofs. May prepare layout and make up pages of type.

9-21.30 Linotype Operator.

Operates keyboard of machine which selects corresponding matrices of letters from magazines, assembles them in lines and automatically casts a strip of type (slug), for each line:

sets marginal stops and gauges according to length and thickness of lines to be formed; reads original copy and presses keys of keyboard so that matrices are selected from magazines and assembled into a line; starts mechanism to cast slug when line is complete and deposit it in galley; passes galleys on for proof printing; examines proof and makes new lines to correct errors; maintains supply of type metal in melting-pot of machine.

May specialise in a particular kind of linotype machine, such as intertype machine, and be designated accordingly. May work on numerical-control linotype machine.

9-21.35 Monotype Keyboard Operator.

Operates keyboard of machine which perforates strips of paper for use in a monotype casting machine:

examines copy, selects and installs keyboard on machine according to size and style of type required; sets and locks scale to indicate spacing of words in line; inserts paper roll through guides on machine; admits compressed air to machine; reads copy and presses keys of keyboard to obtain required perforation in paper strip; spaces out lines as necessary; removes perforated strip from roll and passes it on for type-casting, with instructions.

May work on numerical-control monotype machines.

9-21.40 Type-Casting-Machine Operator.

Sets up and operates machine which automatically casts lines of type for printing:

places perforated roll of paper on holder, threads end of paper through machine guides and attaches it to winding roll; sets machine composing stick to length of line according to instructions; selects matrix case and fixes it in position; locks galley on bed of machine; starts machine; sees that casting is proceeding correctly and maintains supply of molten metal and cooling water; stops machine when galley is full or paper roll is finished; removes galley and passes type on for proof printing; removes and stores paper strip.

May operate machine to cast hand-set type. May operate machines to cast type-setting characters.

9-21.45 Printing Maker-Up.

Arranges set-up type, spacing material and illustration blocks to form pages for printing:

arranges type and illustrations according to instructions or own judgment; places spacing material between type and blocks and between columns; inserts or removes leads for proper spacing between lines; places number at top or bottom of page; ties up page with cord for delivery to imposer.

May set headlines.

9-21.50 Imposer.

Arranges pages of set-up type in predetermined order and locks them in chase in readiness for printing:

places pages of type side by side on imposing stone or table, so that when sheets are printed and folded pages will appear in numerical order; places spacing material around pages of type; checks alignment and spacing of letters and columns and makes necessary adjustments; places chase frame around assembled pages of type; locks type in frame by means of wedges; places wooden block over type and taps it with mallet to level printing surface; tests solidity of assembly and passes it on for proof printing; examines corrected proof and makes necessary alterations.

May print and correct own proof. May arrange pages of type for printing in more than one colour.

9-21.55 Photo-Type-Setting Machine Operator.

Operates keyboard of machine which reproduces letters on film or sensitised paper for eventual reproduction on printing plates:

places unexposed film or sensitised paper in photographic element of machine; examines layout copy for typographical indications, such as spacing typefaces and length of lines; starts machine and sets dial according to typographical instructions on layout copy; reads copy and depresses keys of keyboard to reproduce required letters on film or sensitised paper; manipulates machine controls as necessary to change type size and spacing, adjust camera light and eliminate incorrect lines; removes container with exposed film or sensitised paper on completion of operation and sends it to developing room.

May work on numerical-control photo-type-setting machines.

9-21.90 Other Compositors and Type-Setters.

This group includes compositors, type-setters and photo-type-setters not elsewhere classified, for example those who take proofs of set-up type by means of proof presses; impress metal sheets in making braille type; and arrange photo-composed type-film on paper (positive) for reproduction on printing plates.

9-22 Printing Pressmen

Workers in this unit group set and operate various types of machines which print on paper, tinplate and other materials.

Their functions include:

setting and operating cylinder, platen, rotary, offset, direct lithographic, rotogravure and wallpaper printing presses;

performing related tasks.

9-22.20 Cylinder Pressman.

Sets and operates a printing machine in which separate sheets of paper are pressed by means of cylinder on inked type locked on flat surface:

cleans inking rollers and replaces them in machine; fills ink fountain and regulates flow of ink on inking rollers; locks type in position on bed of press by means of wedges; places wooden block over type and taps it with mallet to level printing surface; packs surface of cylinder with tissue paper so that all parts of print receive correct pressure; starts press and runs off proof sheet; examines proof sheet and makes an overlay by pasting patches of paper on portions of light impression and by cutting out portions of dark impression; places overlay on cylinder in perfect alignment with type; runs off several proof sheets and makes adjustments until evenly printed proof is obtained; sets and adjusts paper guides, paper feeding and automatic counting mechanism; starts press and ensures that printing proceeds correctly.

May direct helpers to perform some of above-mentioned tasks or to feed paper to machine by hand. May mix inks. May work on numerical-control cylinder printing presses. May be designated according to type or name of press.

9-22.25 Platen Pressman.

Sets and operates platen-type printing press to produce printed material:

performs tasks similar to those of *Cylinder pressman (9-22.20)*, but operates a platen-type printing press.

9-22.30 Rotary Pressman.

Sets and operates a printing machine in which continuous roll of paper (web) is printed by means of stereotype plates locked in revolving cylinder:

cleans inking rollers and replaces them in machine; fills ink fountains and regulates flow on inking rollers; locks printing plates in position on cylinders; supervises loading of paper rolls on machine; threads paper through machine guides and rollers; adjusts rollers, automatic counting and paper-folding and -cutting mechanism; makes trial run; checks legibility and uniformity of printing and makes further adjustments if necessary; restarts press and raises it to full speed; checks printed copies at regular intervals and ensures that printing, folding and cutting proceed correctly; rethreads paper if web breaks.

May direct helpers to perform some of above-mentioned tasks. May work on numerical-control rotary letterpress.

9-22.40 Offset Pressman.

Sets and operates a machine in which separate sheets of paper, tinplate or other materials are printed by roller which obtains an ink impression from engraved (lithographic) plate:

cleans inking rollers and replaces them in machine; examines plate for defects; washes plate to remove protective coating and make surface more ink-attracting; packs back of plate with tissue paper to obtain desired printing thickness; clamps plate in position on cylinder, adjusting it for correct tension; inserts packing under rubber blanket of impression roller until roller has correct diameter; fills ink fountain and regulates flow of ink on inking rollers; adjusts space between cylinders according to thickness of sheets to be printed and sets water-damping rollers to deliver proper moisture to non-image portion of plate cylinder; runs off several proof sheets and makes further adjustments if necessary; sets and adjusts paper guides and checks paper feed; starts press and ensures that printing proceeds correctly.

May direct helpers to perform some of above-mentioned tasks. May mix inks.

9-22.50 Direct Lithographic Pressman.

Sets and operates machine in which sheets of paper, tinplate or other materials are printed directly from prepared lithographic stone:

cleans inking rollers and replaces them in machine; examines prepared lithographic stone for defects; cleans stone to remove protective coating and make surface more ink-attracting; clamps stone in position on bed of press; fills ink fountain and regulates flow of ink to inking rollers; adjusts space between stone and cylinder according to thickness of sheets to be printed and sets water-damping rollers to deliver moisture to non-image portions of stone; runs off several proof sheets and makes further adjustments if necessary; sets and adjusts paper guides and automatic counting and feeding mechanism; starts machine and ensures that printing proceeds correctly.

May direct helpers to feed sheets into machine or perform some of above-mentioned tasks. May mix inks. May operate hand press.

9-22.60 Rotogravure Pressman.

Sets and operates machine that prints on continuous roll of paper from photo-engraved plates or cylinders upon which the subject-matter is etched below the surface:

cleans inking rollers and replaces them in machine; locks plate or cylinder in position on machine; fills ink fountains and regulates flow of ink; threads paper through machine guides and rollers; adjusts rollers and paper-folding and -cutting mechanism; sets and adjusts scraper blade which removes excess of ink from surface of plate or cylinder; makes trial run; checks legibility and uniformity of printing on paper and makes further adjustments if necessary; restarts machine and raises it to full speed; checks printed copies at regular intervals and ensures that printing, folding and cutting proceed correctly; rethreads paper through press if web breaks.

9-22.70 Wallpaper Printer.

Sets and operates a machine in which patterns of various designs and colours are printed on wallpaper or other decorative papers by series of engraved rollers:

cleans inking rollers and replaces them in machine; locks printing rollers in position on machine; threads paper through machine guide and rollers; fills colour boxes with required inks; adjusts printing rollers and scraper blades which remove excess of ink from surface of rollers; prints test piece of paper, compares it with sample and makes necessary adjustments; starts machine and ensures that printing proceeds correctly.

May mix inks to match colours.

9-22.90 Other Printing Pressmen.

This group includes printing pressmen not elsewhere classified, for example those who assist printing machine operators to prepare, feed, tend and clean presses.

9-23 Stereotypers and Electrotypers

Workers in this unit group make printing plates from set-up type by stereotyping and electroplating processes.

Their functions include:

making moulds of set-up type with papier-mâché, wax or other materials;

making printing plates by casting metal in moulds of papier mâché or other material bearing impression of type, or by putting metal backing on shell made by electroplating moulds to reproduce type;

performing related tasks.

9-23.20 Stereotyper.

Performs all or several of the tasks involved in making printing plates from set-up type by stereotyping process:

lays sheet of papier-mâché or similar material on type and presses it in hydraulic or roller press to make mould; removes mould from press and trims edges; turns mould face down and fills in hollows on back of mould with pieces of heavy paper or felt to prevent it bending during casting process; heats mould and sets it in casting box; pours molten type metal into box to make plate; allows metal to cool and removes plate from box; shaves, trims, and smooths plate as required; curves plates for cylindrical presses; prints proof from plate and makes new plate if necessary.

9-23.30 Electrotyper.

Performs all or several tasks in making printing plates from set-up type by electroplating process:

lays sheet of wax-coated metal, plastic or lead on type and presses it by hydraulic press to make mould; removes mould from press and trims edges; coats mould with electro-conductive substance; places mould in electrolytic bath until shell of desired thickness has formed on mould; removes shell from mould by rinsing it in hot water; pours backing of molten metal on shell and allows it to cool and form plate; shaves, trims and smooths plate; curves plates for cylindrical presses; prints proof from plate and makes new plate if necessary.

9-23.90 Other Stereotypers and Electrotypers.

This group includes stereotypers and electrotypers not elsewhere classified, for example those who specialise in making quantities of copies of original stereotype plates in plastic.

9-24 Printing Engravers (except Photo-Engravers)

Workers in this group engrave lithographic stones and printing plates, rollers, dies and blocks by various processes other than photogravure.

Their functions include:

cutting designs through film of gum arabic or other substance applied to surface of lithographic stone;

engraving steel and copper plates, rollers, dies and wood, rubber and linoleum blocks by hand;

engraving soft metal rollers by machine;

engraving metal plates and rollers with pantograph machine;

transferring designs from lithographic stone to metal plates;

etching metal plates or rollers with acid;

performing related tasks.

Engraver and etcher (artistic) is classified in 1-61.50. *Photo-engravers* are classified in unit group 9-25.

9-24.15 Lithographic Stone Engraver.

Prepares lithographic stones by coating them and cutting away surface film according to design:

treats clean, polished stone with gum arabic or other means to render surface impervious to grease; outlines design on sheet of celluloid or tracing paper; covers traced lines on design with coloured chalk; places design face down on surface of stone and rubs back of paper to transfer design; cuts design through surface film using sharp pointed engraving tools; applies grease on stone surfaces laid bare by the tools.

May brush protective coating on design and lightly etch stone with acid to desensitise it to ink. May cut fine lines by machine to shade design.

9-24.20 Metal Printing Plate, Roller and Die Engraver (Hand).

Engraves steel or copper plates, rollers and metal dies with hand tools for use in printing on paper, textiles, metal, plastics, porcelain or other materials:

traces pattern directly on plate or roller, or scribes it on gelatine sheet; dusts graphite into outline on gelatine sheet and transfers outline to hard metal rollers or dies to be engraved; engraves lines, dots and dashes in positions, depths and sizes required to outline design.

May engrave some parts by machine. May correct errors in prepared plates, rollers and dies by cutting in omitted lines or dots and by filling up incorrect cuts with metal. May adapt pattern to particular article for which die is made. May engrave plates, rollers or dies for specific purposes and be designated accordingly.

9-24.30 Wood, Rubber or Linoleum Block Engraver (Hand).

Engraves wood, rubber or linoleum blocks for use in printing on wallpaper, textiles or other materials:

draws pattern of engraving on blocks; cuts out parts of block, leaving pattern on raised parts; repeats operation on separate block for each colour of pattern.

May design simple patterns.

9-24.40 Metal Printing Roller Engraver (Machine).

Operates machine which engraves copper or other soft metal printing rollers by pressing with an embossed hard metal roller:

sets embossed hard metal roller and soft metal roller to be engraved into machine and in contact with each other; starts machine and gradually increases pressure between rollers as impression is made; stops machine when impression of required depth is obtained; moves rollers to new position and repeats process to engrave another section adjacent to the first, continuing until engraving is completed.

9-24.45 Engraving Pantograph Operator.

Engraves metal printing plates or rollers with pantograph machine:

polishes surface of plate or roller and clamps it in position under cutting tools; clamps pattern plate in position under tracing point; adjusts control bar to required scale; starts machine and manipulates control bar so that tracing point follows pattern on master plate and cutting tools reproduce it on plate or roller.

9-24.50 Direct Lithographic Transferrer.

Transfers designs from prepared lithographic stones to metal plates for use in printing:

inks stones and impresses inked design on special paper by means of press; transfers design from paper to chemically coated plate; washes plate with weak acid to remove coating from around design; damps plate and re-inks design to intensify it; dusts design with protective powder and etches plate with acid to desensitise the non-printing portions to ink.

May transfer illustrations from lithographic stone to cellophane sheets for use in photo-engraving of plate.

9-24.60 Metal Engraving Etcher.

Etches printing plates or rollers with acid:

polishes plate and applies coating of wax to it; scribes desired design through wax with sharp-pointed tools; immerses plate or roller in acid solution so that part of metal not covered with wax will be eroded; removes plate or roller from acid bath after specified period; measures depth of erosion with micrometer; repeats operation until metal is etched to required depth;

rinses etched metal in cold water to remove acid and then in hot water to remove wax.

9-24.90 Other Printing Engravers (except Photo-Engravers).

This group includes printing engravers (except photo-engravers) not elsewhere classified, for example those copying designs on lithographic stones prior to engraving; engraving wooden rollers; cutting metal stencils.

9-25 Photo-Engravers

Workers in this unit group prepare metal plates by photogravure process for use in printing.

Their functions include:

performing all or several tasks in preparation of printing plates by photogravure process;

photographing illustration and text material to obtain negatives;

retouching negatives;

reproducing material to be printed from negatives on metal plates;

etching photo-printed plates with acid;

retouching plates;

performing related tasks.

9-25.10 Photo-Engraver (General).

Prepares metal printing plates by photogravure process:

photographs copy of matter to be printed; develops film and retouches negative if necessary; prints negative on metal plate; etches metal plate with acid; retouches plates.

May mount plates on wooden blocks. May make proof from finished plate.

9-25.20 Photogravure Cameraman.

Photographs illustrations and textual materials to obtain negatives for use in making metal printing plates:

mounts copy of matter to be printed on board in front of camera and illuminates it with strong artificial light; adjusts camera to obtain picture of desired size and focuses lens; places fine cross-lined glass screens between film and copy for half-tone printing; takes photograph of copy; develops film to obtain negative.

May prepare photo-sensitive glass plates for exposure in camera and do retouching.

9-25.30 Photogravure Retoucher.

Retouches photographic negatives to make them more suitable for use in preparing metal printing plates:

examines negative for defects; makes unclear lines sharper by cutting away darkened emulsion with stylus; paints out spots or blemishes and alters tone of negative to match illustration or text to be printed.

May specialise in retouching colour negatives.

9-25.40 Photo-Mechanical Transferrer.

Reproduces matter from photographic negatives on metal plates for use in printing:

spreads photo-sensitive material evenly over metal plate by hand or machine; places sensitised plate face up on bed of composing machine; mounts negative in frame over plate or mounts negative directly on plate; turns on arc light and exposes plate to negative for a specified period; removes plate and treats it with developing ink until image appears; washes plate with water and applies solution to remove undeveloped coating.

9-25.50 Photogravure Etcher.

Etches photo-printed metal plates with acid for use in printing:

brushes acid-resistant materials on design photo-printed on plate; places plate in etching machine; starts machine which sprays acid on plate and causes parts not covered with acid-resistant materials to be eroded; removes plate from machine before acid penetrates under printed design; washes and dries plate and dusts it with acid-resistant powder; places plate in stove to harden powder on design; replaces plate in etching machine and repeats operations until required depth of etching is obtained; cleans off powder from finished plate with alkali solution.

May etch plates by immersing them in acid bath. May touch up plate by hand etching.

9-25.60 Printing Plate Retoucher.

Corrects imperfections in etched printing plates to make them ready for use:

examines plates under magnifying glass for defects; cleans off burrs or bits of metal; repairs defective half-tone dots; corrects defects in lines and intensifies light or dark portion of plate, using engraving tools.

May re-etch design on plate before mounting and make proof from retouched plate.

9-25.90 Other Photo-Engravers.

This group includes photo-engravers not elsewhere classified, for example those who grain metal plates prior to coating them with photo-sensitive material; mount printing plates on wooden blocks; prepare monochromatic or polychromatic photo-engraving plates or films by an electronic process.

9-26 Bookbinders and Related Workers

Workers in this unit group bind covers to books and perform book-finishing operations.

Their functions include:

binding books and periodicals by hand;

setting and operating bookbinding machines;

embossing designs or titles on books by hand or machine;

performing related tasks.

9-26.20 Bookbinder (Hand).

Binds printed material together by hand to make complete books, collections of documents and series of periodicals, fixes them in covers and performs book-finishing operations:

folds printed sheets of book to be bound to form sections (signatures); gathers signatures in correct order and collates them; sews signatures together to form body of book; compresses sewn signatures in hand press; trims, rounds and grooves edges of pages as required; rounds back of book body into convex shape; makes hinges by gluing fabric or heavy paper strips on back of book body; makes book cover and glues it on end sheets and on back of book body; puts book in press and allows glue to dry.

May perform some tasks by machine. May emboss designs and titles on covers and decorate book edges with plain or mixed colours or with gold leaf. May rebind damaged or worn books.

9-26.30 Bookbinder (Machine).

Performs series of tasks in binding books with machines:

sews together signatures to form book bodies with sewing machine; compresses sewn-together signatures of book bodies to uniform thickness with smashing machine; trims books to size with powered cutting machine; inserts each book into machine which rounds backs and forms grooves at back edge in which covers are hinged; stacks and aligns books and glues super-lining and back-lining on each book; glues cover to end sheets and places books in press to dry.

May fabricate cover for book, cutting and trimming cover material. May emboss designs and titles on covers and decorate book edges with plain or mixed colours. May operate various types of machinery and be designated accordingly.

9-26.40 Book Embosser (Hand).

Embosses designs or titles on book covers with hand tools:

marks off cover with guide lines; fits metal type into holder or selects die of design to be reproduced; heats type or die and presses it into cover according to markings.

May imprint designs or titles in gold, silver or colours. May apply coat of varnish to embossed covers.

9-26.50 Book Embosser (Machine).

Sets up and operates electrical pressing machine to emboss designs or titles on book covers:

installs metal type or die in machine and switches on die heating element; fixes reel of coated ribbon on spindle and threads it through machine guides and under die to automatic take-up reel; places book cover in position; operates machine to emboss book cover and removes finished item.

May use automatic feed machine.

9-26.90 Other Bookbinders and Related Workers.

This group includes bookbinders and related workers not elsewhere classified, for example those who decorate book edges with plain or mixed colours, or with gold leaf, by hand.

9-27 Photographic Dark-Room Workers

Workers in this unit group process exposed photographic still and motion picture film and make photographic prints.

Their functions include:

processing colour and black-and-white films and plates to obtain negatives or transparent positives;

printing and developing black-and-white or colour photographs with contact-printing equipment;

enlarging or reducing photographs;

performing related tasks.

9-27.20 Colour Developer.

Treats exposed colour film with series of timed chemical and water baths and diffused light in dark-room to prepare coloured negatives and transparent positives:

for developing reversal film to produce positive, immerses film in developer and colour developer, fixing and hardening solutions, rinsing it between each bath, and dries it; for developing negative film to produce negative immerses film in colour developer, bleaching and fixing solutions, rinsing it between each chemical bath, and dries it; times period of immersion in each bath and maintains solutions at required temperature; replenishes solutions.

Workers operating colour motion picture film developing machines are classified in 9-27.90.

9-27.30 Black-and-White Developer.

Treats exposed black-and-white film and photographic plates with series of timed chemical and water baths in dark-room to prepare black-and-white negatives and positives:

prepares required developing solutions by mixing chemicals and water according to formulae; immerses film or plate in developer solution to make image visible; rinses film or plate into fixing bath to produce transparent and light-constant negative; rinses negatives in water to wash off fixing solution; dries negative by swabbing off excess water with sponge and hanging in clean air; times period of immersion in each bath and maintains solutions and water at required temperature.

May prepare transparent positives from negatives. May do contact-printing.

9-27.40 Photograph Printer.

Prints and develops black-and-white and colour photographs with contact-printing machine in dark room:

examines negatives for contrasts, and selects appropriate photographic paper to produce clear prints; positions negative and paper in printing frame, fastening down edges; arranges lights to compensate for variations of light and shade in negative; exposes negative and paper to light for timed period, using colour filters when processing colour prints; develops exposed print in series of timed chemical and water baths; dries and trims finished prints.

May apply glossy finish to prints by heated metal press. May print colour photographs by other methods, such as projection or reproduction process.

9-27.50 Photograph Enlarger.

Enlarges or reduces photographs with projection printer in dark room:

inserts negative in holder on printer and switches on light which shines through negative to easel below; adjusts various parts of printer and centres image to secure desired projection; determines exposure time and lens opening and selects appropriate photographic paper; switches off light and fixes photographic paper in easel; switches on light, and exposes paper to light for a timed period, shading darker areas of image to produce prints with roughly equivalent intensity or correcting colour deficiencies of negative with colour filters; develops exposed prints in series of timed chemical and water baths; washes, dries and trims finished prints.

May apply glossy finish to prints with heated metal press.

9-27.90 Other Photographic Dark-Room Workers.

This group includes photographic dark-room workers not elsewhere classified, for example those who operate automatic printing and developing machines which produce photographic prints in large quantities; operate machines for developing and drying motion picture films; inspect reels of developed colour film for defects; operate photographic print-washing machines; and operate X-ray film developing machines.

9-29 Printers and Related Workers Not Elsewhere Classified

Workers in this unit group carry out printing tasks not elsewhere classified.

Their functions include:

cutting stencils for silk-screen printing;

printing on paper, metal, textile and other materials by silk-screen process;

printing designs on cloth or wallpaper with engraved blocks;

printing patterns on cloth by machine equipped with engraved rollers;

performing related tasks.

9-29.20 Silk-Screen Stencil Cutter.

Cuts stencils, according to design, for use in silk-screen printing:

superimposes shellac-coated transparent paper on design of matter to be reproduced; cuts design in shellac with knife without cutting paper; irons paper on silk or fine copper-mesh screen to transfer shellac stencil to it; cuts different stencils for each colour to be reproduced.

May draw design directly on screen and make stencil by filling in surfaces round design with glue, lacquer or paper. May operate silk-screen printing equipment.

9-29.30 Silk-Screen Printer.

Prints on paper, metal, textile and other materials by silk-screen process:

mounts stencil on silk screen; stretches and fits silk screen on printing frame; bolts printing frame to hinged outer frame on printing table; places paper or other material to be printed accurately in position and lowers screen on to it; deposits ink of required colour on screen and forces it through stencil and screen by means of squeegee; lifts screen, removes printed material and repeats process to obtain required number of prints; repeats process with new stencil for each additional colour in design; cleans screen with solvent at end of run or when colour of print is to be changed.

May use automatic or semi-automatic screen printing machine.

9-29.40 Block Printer.

Prints designs on cloth and wallpaper with engraved blocks of wood, rubber or other material:

sets cloth or wallpaper in position on printing table; coats block with required colour by pressing it on colour pad; places block in exact position on cloth or wallpaper and raps it sharply with weight; repeats process until whole length of material has been printed; repeats process with new block for each additional colour in design; removes finished cloth or wallpaper from table and allows it to dry.

9-29.50 Textile Printer.

Sets and operates machine which prints patterns of various designs and colours on textile material by means of engraved printing rollers:

cleans inking rollers and replaces them in machine; locks printing rollers in position on machine; threads cloth or yarn through machine guides and rollers; fills colour boxes with required inks; adjusts printing rollers and scraper blades which remove excess ink and particles of material from surface of roller; prints test piece of cloth or yarn, compares it with sample and makes adjustments if necessary; starts machine and ensures printing proceeds correctly.

May mix inks to match colours. May specialise in printing a particular type of textile and be designated accordingly.

9-29.90 Other Printers and Related Workers.

This group includes printing workers not elsewhere classified, for example those who specialise in making silk-screen printing stencils by photographic process; operating paper-embossing press or relief-printing press.

9-3 PAINTERS

Workers in this minor group prepare structural surfaces for painting and apply decorative and protective coatings to buildings, ships, motor vehicles and articles of wood, metal, textile and other materials (except glass and ceramic products). They are classified in the unit groups listed below:

9-31 Painters, Construction.

9-39 Painters Not Elsewhere Classified.

Glass and ceramics painters and decorators are classified in unit group 8-95. *Paperhanger* is classified in 9-59.25.

9-31 Painters, Construction

Workers in this unit group prepare surfaces of buildings and other structures for painting and apply protective and decorative coats of paint and similar materials.

Their functions include:

applying coats of paint, varnish, shellac and similar materials to exterior surfaces, trimmings and fixtures of buildings;

applying paint, red lead, bituminous emulsion and similar materials on ships' hulls and metal superstructures, steel frameworks of buildings, bridges and metal structures;

performing related tasks.

Painters of motor vehicles are classified in unit group 9-39.

9-31.20 Building Painter.

Applies coats of paint, varnish, shellac and similar materials to exterior and interior surfaces, trimmings and fixtures of buildings to protect and decorate them:

mixes paint according to colour and other characteristics required by stirring together proportions of pigment, oil, thinning and drying substances; erects scaffolding or positions ladder; removes old paint with scraper, wire brush, blowtorch or liquid paint remover; cleans surfaces with brush, cloth or abrasive material and patches cracks and holes with putty, plastic wood or other filler; applies undercoat and one or more other coats of paint or other materials to surfaces with a brush, roller or spray-gun.

May finish and decorate surfaces with stippled, wood-grain, marble or brick and tile effects or by gilding, silvering or painting over stencils. May paint fixtures, fittings and other objects in buildings, fences and other appurtenances. May hang wallpaper.

Paperhanger is classified in 9-59.25.

9-31.30 Structural Steel and Ship Painter.

Applies coatings of paint, red lead, bituminous emulsion and similar protective materials on bridges, ships' hulls and metal superstructure, steel framework of buildings, storage tanks and other metal structures:

rigs up scaffolding, cradles, ladders and other equipment; scrapes dirt, rust or scale from surface to be painted; brushes paint or other materials on surface.

May mix paint and linseed oil, colouring matter or other substances to obtain proper consistency and colouring. May burn off old paint with blowtorch and smooth surfaces before painting.

9-31.90 Other Painters, Construction.

This group includes construction painters not elsewhere classified, for example those who paint imitation building exteriors or interiors and similar pieces of stage and film sets; specialise in a particular type of finish such as graining or marbling; prepare surfaces for painting; paint ships' woodwork and interior fittings; paint railway coaches and wagons.

9-39 Painters Not Elsewhere Classified

Workers in this unit group apply decorative and protective coatings to articles of wood, metal, textiles and other materials (except glass and ceramics).

Their functions include:

coating and staining articles with paint, enamel, lacquer and similar substances to give them a decorative or protective covering, using brushes, rollers and spray equipment;

immersing articles in paint, enamel, lacquer or similar substances;

laying out and painting letters and designs to make signs;

painting motor vehicles;

performing related tasks.

Glass and ceramics painters and decorators are classified in unit group 8-95.

9-39.20 Brush-Painter (except Construction).

Applies decorative and protective coatings of paint, enamel and lacquer on wooden, metal and other manufactured articles (except glass and ceramics) with brush and hand rollers:

selects and mixes colouring materials to obtain desired shade; applies one or more coats of colouring material to articles to be painted, using brush or roller; brushes on paint, following patterns or marks, or applies paint through stencil; finishes and decorates surfaces with stencilled designs, wood-grain, marble or other effects, gilding, silvering and other special finishes; rubs painted surfaces with abrasives or other materials to obtain even finish.

May be designated according to object painted or material used.

Sign painter is classified in 9-39.50.

9-39.30 Spray-Painter (except Construction).

Applies decorative and protective coatings of paint, enamel and lacquer on metal, wooden and other manufactured articles with a hand-spraying device:

selects and mixes paints to obtain desired colour; pours coating material into tank of spraying device; adjusts air pressure valves and nozzle; directs spray over surfaces to apply prime and finishing coats; applies masking tape to parts and areas that are not to be painted.

May prepare surfaces for painting using scrapers, abrasives, chemicals or other means. May be designated according to article coated or material used.

Ceramics spray-painter is classified in 8-95.50.

Workers specialising in hand-spraying motor vehicle bodies are classified in 9-39.60.

9-39.40 Hand Dipper.

Immerses articles (except ceramics) in paint, enamel, stain, varnish, lacquer and similar liquids to impart a protective or decorative coating:

adds ingredients to vat according to specifications; places articles in wire basket and immerses them in liquid by hand or by using a hoist, or dips them directly by hand; withdraws articles from vat and removes excess liquid.

May clean articles before dipping. May place coated articles in oven to dry enamel or other coating. May be designated according to article dipped or type of coating applied.

Ceramics dipper is classified in 8-95.60.

9-39.50 Sign-Painter.

Plans, lays out and paints letters and designs to make signs:

prepares layout for sign; marks outlines of letters and designs directly on surface to be painted, or transfers outline from paper to surface to be painted; mixes paints and pigments to obtain required colours and paints letters and designs, using a selection of brushes.

May make signs by cutting out and sticking gold or silver leaf lettering to surfaces. May use stencils. May cut and assemble forms for metal or wooden signs.

9-39.60 Automobile Painter.

Paints automotive vehicles such as automobiles, buses and trucks:

removes old paint from vehicle or damaged parts using paint solvent and scraper; applies base coating and rubs it down to smooth surface; places covers on windows, chromium-plated and other parts which are not to be painted; mixes paints to obtain required colour; paints vehicle or particular parts with spray-gun; paints lines and retouches paintwork with a brush.

May polish finished surfaces.

9-39.90 Other Painters.

This group includes painters not elsewhere classified, for example those who touch up blemishes in new paintwork to perfect the finish of manufactured articles; operate automatic spray-painting devices to coat (dip or spray) new motor vehicle bodies or other articles on a conveyer; operate a paint-striping machine to paint stripes on street and highway surfaces; operate other types of painting machines or paint-drying and paint-baking devices.

9-4 PRODUCTION AND RELATED WORKERS NOT ELSEWHERE CLASSIFIED

Workers in this minor group are production and related workers who are not classified in any other minor group. Included in this group are craftsmen and specialised workers performing functions requiring application of particular techniques, use of particular tools or machines and abilities and experience in working particular materials in order to make such articles as musical instruments; baskets and brushes; products of cast concrete, asbestos cement, artificial stone and other non-metallic mineral products; objects of cork; linoleum; dolls and stuffed toys; rubber stamps; candles; photographic film and paper; matches; buttons; and various other products. The group also includes those who prepare and stuff skins of animals and birds to give life-like form. Also included are those performing other product-making and processing tasks not elsewhere classified. They are classified in the unit groups listed below:

9-41 Musical Instrument Makers and Tuners.
9-42 Basketry Weavers and Brush Makers.
9-43 Non-Metallic Mineral Product Makers.
9-49 Other Production and Related Workers.

9-41 Musical Instrument Makers and Tuners

Workers in this unit group make, repair and tune stringed, wind or percussion instruments with hand or power tools.

Their functions include:

making and repairing accordions, stringed and wind instruments;

building and repairing organs and making parts of organs from wood, leather, metal and other materials;

making instrumental parts of pianos from wood, felt, metal, wire and other materials and assembling and repairing pianos;

tuning organs, pianos or other musical instruments;

making and repairing other musical instruments;

performing related tasks.

9-41.20 Stringed Instrument Maker.

Makes and repairs stringed instruments of wood, ebonite, metal and other materials, using hand and power tools:

selects and marks materials, cuts out, drills, carves, shapes and finishes parts of instrument; fixes parts together by gluing, screwing or otherwise; applies stain and varnish; attaches strings, pegs and other fittings; tests instrument and makes changes to improve tone if necessary.

May specialise in making or repairing a particular type of stringed instrument.

9-41.30 Woodwind Instrument Maker.

Makes and repairs wind instruments, mainly of wood, using hand and power tools:

selects and marks materials, cuts out, drills, shapes and finishes parts of instruments; fixes parts together by screwing, gluing or otherwise; fits keys and other attachments into position; tests instrument and makes changes to improve tone if necessary.

May make metal parts. May specialise in making or repairing a particular type of woodwind instrument.

9-41.40 Metal Wind Instrument Maker.

Makes and repairs metal wind instruments, using hand and power tools:

cuts and bends metal tubes and shapes other metal pieces as required; makes valves and pistons on lathe and makes keys by cold-forging, filing and grinding; fits and solders together pistons, valves, keys and other parts; tests instrument and makes changes to improve tone if necessary.

May repair instruments. May specialise in making a particular type of instrument.

9-41.50 Accordion Maker.

Makes and repairs accordions of wood, paper, plastics, artificial leather, metal and other materials, using hand and power tools:

builds box sections of plywood; glues and clamps joints; cuts slots in each end of keys; makes bellows of plastics or paper covered with artificial leather; sets reeds in holding blocks and verifies pitch with tuning fork; glues plastic strips on box ends and keys and glues bellows to end of each case; trims material with knife; finishes accordion with lacquer or other decorative or protective covering.

9-41.60 Organ Builder.

Makes the instrumental parts of organs of wood, metal, leather and other materials, using hand and power tools, and builds and repairs organs:

Makes parts for organ action; bolts down, couples up and rivets together key-boxes, drill stops and other parts; makes organ pipes of wood or casts various metals and forms pipes; builds organs in churches, cinemas and other buildings; repairs organs.

May install mechanical or electrical components. May specialise in one or more operations, such as making action parts or organ pipes, and be designated accordingly.

9-41.70 Piano Maker.

Makes, assembles and repairs instrumental parts of pianos of wood, felt, wire and other materials, using hand and power tools:

makes dampers, checks, hammers and other parts for the piano action; joins them together and fits them in position; adjusts action by loosening or tightening setting of hammers and by bending spring wire in hammer butts with fingers; makes and assembles piano keys; assembles and mounts sound board on back panel of piano; cuts piano strings to required length and attaches them to rest pins in frame.

May tune pianos. May specialise in one or more operations, such as making action parts, keys or soundboards, and be designated accordingly.

9-41.80 Musical Instrument Tuner.

Tests and adjusts musical instruments, such as pianos and organs, to produce correct tones and keep instrument in good condition:

strikes tuning fork and compares tone with that of pipe, string or reed; adjusts distance between lips of pipe, adjusts string tension or shaves reed until tone coincides with that of tuning fork; adjusts other pipes, strings or reeds, comparing their tones with the one previously tuned.

May repair instruments and replace broken or defective parts. May specialise in tuning a particular instrument and be designated accordingly.

9-41.90 Other Musical Instrument Makers and Tuners.

This group includes musical instrument makers and tuners not elsewhere classified, for example those making drums and xylophones.

9-42 Basketry Weavers and Brush Makers

Workers in this unit group weave baskets, make wicker furniture and assemble brushes and brooms.

Their functions include:

making various kinds of baskets by interlacing osier, rattan, reeds, rushes or similar material;

selecting and preparing brush materials, such as bristles, fibre, nylon and wire, and setting them in brush base;

selecting and preparing materials, such as broom corn, bass, whisker and fibre, and fastening them to broom handles;

making wicker furniture from peeled and softened rattan, reeds, rushes, willow and similar material;

performing related tasks.

9-42.20 Basket Maker.

Makes baskets and other basketry articles by interlacing osier, willow, rattan and similar materials by hand:

forms bottom of basket by interlacing strips of rattan, wood veneer or other material with framework of rods of material such as willow; inserts rods around edge of bottom between woven sections of bottom and bends them upright to serve as framework for sides; weaves strips through rods until sides are completed; tapers or points ends of protruding rods, bends them and inserts them into spaces in top edge of basket.

9-42.30 Brush Maker (Hand).

Selects and prepares brush materials, such as bristles, fibre, nylon and wire and sets them in brush base:

grades and mixes filling material according to type of brush and cleans and prepares it; sorts and arranges material in tufts; inserts tufts in prepared holes and secures them with glue, cement, pitch or wire; trims brush material to required length.

May perform certain tasks by machine.

9-42.40 Broom Maker (Hand).

Selects and prepares materials, such as broom corn, bass, whisker and fibre and fastens them to broom handles by hand:

grades and mixes broom material according to type and cleans and prepares it; arranges material around end of broom handle and fastens it to handle with wire or metal strips; builds up successive layers of broom material, pounds it to shape shoulders and ties it with thong ready for stitching; trims broom material to uniform length.

May be designated according to type of broom made or material used.

9-52.50 Wicker Furniture Maker.

Makes wicker furniture from peeled and softened rattan, reeds, rushes, willow sticks and similar materials by hand:

bends rods of material over gas flame or steam jet to desired shape and fastens them together to form frame; weaves and winds willow, plaited rushes, split canes or similar material in, through, and around frame; strengthens and conceals frame joints by winding material around them; cuts off, conceals or weaves together loose ends to finish edges.

May specialise in fabricating a particular article or part of furniture and be designated accordingly.

9-42.90 Other Basketry Weavers and Brush Makers.

This group includes basketry weavers and brush makers not elsewhere classified, for example those who plait braids of grass, reed and similar material for making mats and other articles; staple rims of basket cover mats by machine; split canes or willow rods by hand or machine; operate machines which automatically drill holes and insert bristles in brushes; operate mixing machine to clean and mix bristles used in brush manufacture; stitch brooms by machine to shape and strengthen them; make flue, bottle and similar brushes by placing bristles or similar material between wires and twisting the wires by hand or machine to clamp the bristles.

9-43 Non-Metallic Mineral Product Makers

Workers in this unit group make products composed primarily of non-metallic mineral materials.

Their functions include:

performing one or more tasks in the manufacture of pre-cast concrete products such as flagstones, fencing posts, moulded pipe sections and trench liners, walling and partition slabs, or in making asbestos cement products such as building components, cable conduits, fume and dust extraction conduits, or in making cast stone for building purposes;

performing related tasks.

9-43.20 Cast Concrete Product Maker.

Performs one or more tasks in the manufacture of precast concrete products, such as kerbstones, flagstones, fencing posts, moulded pipe sections and trench liners, lintels, blocks, concrete bricks and tiles, composite building units, walling and partition slabs, segmented tunnel linings and foundation piling:

sets or assembles moulds; positions reinforcement in mould; starts moulding machine to cast concrete; fills and compacts concrete in mould; strips mould and performs external finishing.

May perform particular task in the manufacture of precast concrete products and be designated accordingly.

9-43.30 Asbestos Cement Product Maker.

Performs one or more tasks in the manufacture of asbestos cement products such as building sheets, slates, pipes, cable conduits, ventilators, fume and dust extraction conduits:

treats asbestos fibre in grinding mills to prepare correct texture for use and blends it as required; mixes treated fibre with cement and water; operates machines which mould and press the mixture to produce pipes, asbestos cement sheets and other asbestos cement products.

May perform particular task in the manufacture of asbestos cement products and be designated accordingly.

9-43.40 Cast Stone Maker.

Performs one or more tasks in the manufacture of cast stone for building purposes:

sets or assembles moulds; mixes, by hand or machine, materials such as gravel, granite chips, slag, breeze, sand and stone dust with water and cement in proportions required; fills mould and allows mixture to set; removes cast stone from mould; finishes cast stone by smoothing surface with sandstone, polishing with emery and buffing wheel, and bevelling corners and edges.

May perform particular task in the manufacture of cast stone and be designated accordingly.

9-43.90 Other Non-Metallic Mineral Product Makers.

This group includes non-metallic mineral product makers not elsewhere classified, for example those making abrasive-coated cloth and paper.

9-49 Other Production and Related Workers

Workers in this unit group are production and related workers not classified in any other unit group.

Their functions include:

preparing, stuffing and mounting skins of animals and birds;

performing one or more tasks in the making of products such as linoleum, dolls, stuffed toys, candles, photographic film and paper, pencils, crayons and coloured chalks, matches, corks and other articles of cork, buttons, metal and wooden toys;

making rubber stamps;

inspecting finished products or parts for conformance to manufacturer's standards, finish and appearance.

9-49.20 Taxidermist.

Prepares, stuffs and mounts skins of animals and birds in life-like form:

removes skin of bird or animal, taking care to preserve hair or feathers and other outward features in natural state; rubs preservative solutions into skin; makes body foundation with wire, wood and papier-mâché to give natural attitude and to show form of specimen; covers foundation with skin using special adhesive; fits teeth, claws, feathers, glass eyes and other parts.

May mount specimen in case with representation of natural surroundings.

9-49.30 Linoleum Maker.

Performs one or more tasks in the making of linoleum:

mixes materials such as oil, rosin and ground cork in a mixing machine to produce linoleum cement; operates calender machine which spreads linoleum cement on burlap or hessian; stores coated cloth in heated rooms to dry and harden; operates rotary machine which prints patterns on linoleum by means of engraved or cut hollow rollers fed with various oil colours; passes linoleum through machine which trims edges and cuts off desired length.

May perform particular task in linoleum making and be designated accordingly.

9-49.40 Doll and Stuffed Toy Maker.

Performs one or more hand or machine tasks in the making and repairing of dolls or stuffed toys:

assembles moulded doll parts or stuffs previously sewn parts with cotton, wood shavings or other material to give them shape; fastens legs and arms onto torso; affixes artificial eyes; secures head to shoulders by means of a shank collar so that head may be turned at will; dresses dolls.

May be designated according to type of toy or type of work performed.

9-49.50 Rubber Stamp Maker.

Makes rubber stamps to order and mounts them for use:

composes metal type or makes printing plate to match copy, locks type in chase and mounts chase on bed of vulcaniser; mixes french chalk, china clay, plaster of Paris, dextrine and water and places compound in moulding plate; reverses moulding plate over chase to receive type impression in compound and dries mould in oven; covers moulded impression with piece of uncured rubber; clamps rubber-covered mould under steam chamber of vulcaniser until rubber is cured; removes cured rubber from mould, trims and mounts stamp on wooden or metal backing with rubber cement.

9-49.60 Candle Maker.

Performs one or more tasks in the manufacture of candles by dipping or moulding:

to make candles by dipping, suspends candle wicks from metal frame; manipulates pulley system by hand or with motorised mechanism to dip wicks into molten wax, paraffin or similar materials as many times as necessary to build up candles to required dimensions; to mould candles, places wicks in moulds; pours molten wax, paraffin or similar material around wicks into moulds; allows wax to harden in moulds, admitting cold water to jackets surrounding moulds to speed hardening process.

May operate cast-moulding machine to form candles.

9-49.70 Photographic Film and Paper Maker.

Performs one or more tasks in the making of photographic film and paper:

forms emulsion jelly by mixing gelatine, water and chemicals in kettle, heating for prescribed period and allowing mixture to cool; melts and ripens emulsion jelly prior to coating, controlling temperature to produce emulsion of required viscosity and adding further chemicals according to type of coating required; operates coating machine, feeding film of paper base material into machine, which moves it on rollers through liquid emulsion, over a chill roll or into a cooling chamber to set emulsion, and, slowly, through a drying tunnel supplied with warm, filtered air; operates rotary slitting machine which slits film or paper into narrow width and automatically re-reels each width.

May perform particular task in making photographic film and paper and be designated accordingly.

9-49.80 Quality Inspector.

Inspects finished products or parts for conformance to manufacturer's standards, finish and appearance:

examines product for accuracy of assembly and completeness; inspects for defects, such as dents, cracks, burrs, blisters, scratches, colour variations and faulty alignment; measures or weighs product for conformity to specifications and to verify dimensional accuracy using weighing scales, fixed gauges, ruler, micrometer and various test instruments; inspects markings for location, legibility and form; marks defects with chalk, crayon, gummed label or in some other fashion.

May repair certain flaws. May operate fluoroscope, X-ray, or magnaflux machine to examine products for internal defects.

9-49.90 Other Production and Related Workers Not Elsewhere Classified.

This group includes other production and related workers not elsewhere classified, for example those who make footwear from raffia, straw or similar material; operate machines in the making of matches; operate machines in the making of wood-encased pencils; operate automatic machine in which milled chalk or clay mixture is compressed in metal moulds to form crayons or coloured chalk pieces; cut cork slabs to remove coarse grain, fibrous skin and faulty pieces; operate machines which cut, grind and shape or punch cork articles from prepared cork sheets; clean, split, twist, stretch, polish and otherwise treat gut by hand or machine in the production of gut strings; perform hand or machine tasks in the making of buttons from various materials, such as composition or vegetable material, ivory or pearl; make novelty buttons from strips of leather or other pliable material by hand knotting and weaving; make metal or wooden toys, using hand and machine tools to cut, fit and assemble toys; make wigs, fastening strands of hair to cloth base; make artificial teeth of feldspar, mixed with gum and other ingredients, according to formulae; operate machines for coating and backing photographic plates; treat and coat paper or paper felt with tar or asphalt; waterproof textiles with oil; perform repetitive carving operations to make products from materials such as plastics, ivory and bones; perform other product-making and -processing tasks not classified elsewhere.

9-5 BRICKLAYERS, CARPENTERS AND OTHER CONSTRUCTION WORKERS

Workers in this minor group erect and repair buildings and other structures. They lay bricks, stones and tiles; erect reinforced concrete frameworks; cover roof frameworks with roofing tiles and other materials; make, erect, fit and repair wooden structural frameworks, flooring, fixtures, panelling, boats, plain furniture, and other objects of wood; apply lath and plasters in buildings; apply insulating materials to buildings, boilers, pipes, refrigeration and air-conditioning equipment; fit and set glass in buildings and vehicles; perform other tasks related to building and construction. They are classified in the unit groups listed below:

9-51 Bricklayers, Stonemasons and Tile Setters.
9-52 Reinforced Concreters, Cement Finishers and Terrazzo Workers.
9-53 Roofers.
9-54 Carpenters, Joiners and Parquetry Workers.
9-55 Plasterers.
9-56 Insulators.
9-57 Glaziers.
9-59 Construction Workers Not Elsewhere Classified.

Plumbers and pipe fitters, *Welders and flame-cutters*, *Sheet-metal workers* and *Structural metal preparers and erectors* are classified in minor group 8-7, *Crane and hoist operators* and *Earth-moving and related machinery operators* in minor group 9-7, and *Building painter* in 9-31.20.

9-51 Bricklayers, Stonemasons and Tile Setters

Workers in this unit group erect and repair foundations, walls and complete structures of brick, stone and similar materials and cover and decorate walls, ceilings and floors of buildings with tiles and mosaic panels.

Their functions include:

laying brick, hollow tile and similar building blocks to construct walls, partitions, arches, fireplaces and other structures;

laying bricks to construct smoke stacks;

laying firebrick or refractory blocks and tiles to build and repair furnaces, converters, kilns and ovens;

building stone structures such as walls, piers and abutments;

laying walks, kerbs and pavements of stone;

setting tiles to surface walls and floors;

constructing and laying mosaic panels to decorate floors, walls and other surfaces;

performing related tasks.

9-51.20 Bricklayer (Construction).

Lays bricks, hollow tiles and similar building blocks (except stone) to construct walls, partitions, arches, interior fireplaces and chimneys, and other structures:

examines plans and other specifications of structure to be erected; spreads mortar with trowel on building blocks and lays them in rows, designs and shapes; taps block with trowel to align it and embed it firmly in mortar; checks vertical and horizontal alignment of structure with level and plumb-line as work progresses.

May fix brick or terra-cotta veneer to face of masonry structure, form ornamental brickwork designs, and alter and repair existing brickwork.

9-51.25 Bricklayer (Chimney Building).

Lays bricks or tiles to construct tapering chimneys of great height:

examines plans and other specifications; lays courses of heavy bricks, using mortar as binder, to follow circular outline of chimney, setting each course with slight offset to produce desired taper; lays bricks to back up outside courses of chimney and form lining; attaches rigging and tackle to the chimney to support scaffolding as work progresses; builds flue opening at required height; washes down outside surface of chimney with diluted acid solution; fixes lifting apparatus to top of chimney to assist subsequent repairs.

May do ornamental work on chimneys. May attach lightning-conductor to chimney.

9-51.30 Firebrick Layer.

Lays firebricks and refractory blocks and tiles to build or repair fireboxes, casings, linings and insulation of high-temperature equipment such as furnaces, steam boilers, converters and ovens:

examines plans and other specifications; spreads fire-clay mortar with trowel, lays bricks or blocks in place, makes provision for expansion joints in linings; taps bricks and blocks with trowel to embed them firmly in mortar; aligns bricks and blocks and finishes joints.

May specialise in work on a particular type of high-temperature equipment, such as repairing ovens and kilns or preparing furnaces for use, and be designated accordingly.

9-51.40 Stonemason (Construction).

Builds stone structures such as walls, piers and abutments, lays walks and constructs other types of stonemasonry:

examines plans and specifications; selects cut stone and shapes it preparatory to setting with chisel, hammer or other shaping tools; spreads mortar with trowel over foundation or laid stone; sets stone in mortar bed by hand or with lifting device and tamps into place with hammer; aligns stone with level and plumb-line; fills vertical joints between stones with mortar and finishes them with pointing trowel.

May specialise in a particular type of stonemasonry and be designated accordingly. May fix stone facings to structures of brick or concrete.

Stone cutter and finisher is classified in 8-20.20.

9-51.45 Marble Setter.

Prepares and sets marble blocks and slabs to construct and cover floors, walls and other surfaces:

examines plans and specifications; prepares marble pieces by sawing, cutting, facing, trimming and bevelling them to required size and shape; when floor-laying, spreads and levels mortar bed composed of powdered chalk, cement and sand on base on which slabs are to be laid, covers underside of slabs with thin layer of mortar to ensure perfect level, fills joints between slabs with mortar and trims them with trowel or wooden paddle, removes excess mortar and cleans surfaces; when setting wall slabs, marks and drills holes in slabs and wall for brackets and anchors and attaches these, spreads mortar on bottom of slab and sides of adjacent slabs, sets slab in position, tamps it and anchors bracket attachment with wire, fills joints with grout and finishes with trowel or wooden paddle, cleans surface.

9-51.50 Tile Setter.

Sets tiles to surface walls and floors:

examines drawings and other specifications; calculates numbers of different tiles required; soaks tiles in water to prepare them for setting; applies plaster coat and layer of mortar to wall and sets tiles according to pattern; cuts tiles to complete surface to be tiled at corners and edges; taps tiles into place or slides levelling board over their surface, tapping them with board to level surface and increase bond between tile and cement; aligns rows of tiles, using spirit level and straight edge; wipes newly laid tile surfaces with filling material to fill joints and cleans surfaces.

9-51.55 Mosaic Cutter and Setter.

Constructs and lays mosaic panels to decorate floors, walls and other surfaces:

selects mosaic tiles or cuts and prepares pieces of stone, ceramic, coloured glass and other suitable materials; matches and fits tiles and pieces of other materials according to pattern; sets out sections of matched tiles and pieces of other materials on sheet of paper and attaches them thereto with adhesive to form mosaic panel in reverse; prepares floor, wall or other surface for panel, applies cement and beds mosaic design in cement by pressing reverse side of mosaic panel on it; allows cement to partially set, removes paper and excess cement; touches up face of design by filling joints and polishing.

May specialise in cutting or setting mosaic and be designated accordingly.

9-51.60 Paviour.

Lays wood blocks, paving stones, slabs, bricks and kerbstones on sand or other type of bed to make roads, pavements and open drains:

stakes out longitudinal grade line; sets block or other paving material in position on bed and taps it with hammer; cuts unit to required shape if necessary; checks alignment of units with straight-edge; pours hot tar or cement mortar into joints between units.

9-51.90 Other Bricklayers, Stonemasons and Tile Setters.

This group includes bricklayers, stonemasons and tile setters not elsewhere classified, for example those who lay bricks, concrete blocks or shaped tiles to construct sewers or manholes or chambers for enclosing waterline valves; lay tile conduits to insulate and protect water and steam lines; rebuild and repair surface or constructional stonework of historical ruins; lay cut and dressed ornamental stone for monuments; lay stone in embankments or water drains to prevent soil erosion; line ingot mould covers with firebrick mortar.

9-52 Reinforced Concreters, Cement Finishers and Terrazzo Workers

Workers in this unit group erect reinforced concrete frameworks and structures, make forms for moulding concrete, reinforce concrete, lay reinforced concrete surfaces, finish and repair cement surfaces and carry out terrazzo work.

Their functions include:

constructing and repairing reinforced concrete floors, walls, tanks, silos, and other concrete structures;

making shuttering or assembling prefabricated forms for moulding concrete;

cutting, bending and fixing metal reinforcing rods in concrete moulding forms;

finishing surfaces of concrete structures and smoothing surfaces of freshly poured concrete sections;

applying a durable, smooth surfacing composed of cement, sand, pigment and marble particles to floors (terrazzo);

performing related tasks.

Concrete-mixer operator is classified in 9-74.70.

9-52.10 Reinforced Concreter (General).

Builds reinforced concrete structures and structural parts such as pillars, beams, floors and walls:

studies plans and specifications; assembles or constructs shuttering and fixes it in position; cuts, shapes, assembles and fixes reinforcing rods or mesh in shuttering; prepares concrete by hand or in concrete mixer, or signals to helper to deliver ready-mixed concrete; pours concrete into shuttering, distributing and tamping it or settling it with vibrating machine; levels and smooths surface of concrete; removes shuttering when concrete is dry and smooths rough edges.

9-52.20 Concrete Shutterer.

Builds, assembles, places in position and dismantles rough wooden structures (shuttering) into which concrete is poured and allowed to set:

marks out, cuts and adjusts wood to be assembled in shuttering partitions or assembles shuttering from prefabricated wooden parts; assembles shuttering parts on site and screws, nails or clamps them together; places stays between shuttering partitions to give structure necessary rigidity; aligns shuttering with bob and plumb-line; patches holes in shuttering; dismantles shuttering when concrete has set and cleans off adhering concrete.

9-52.30 Reinforcing Iron Worker.

Cuts and bends metal rods and fixes them in concrete forms (shuttering) to reinforce concrete:

selects rods according to specifications or instructions and cuts them to required length; bends rods with hand tools or bending machine; joins rods together with wires or fasteners or by welding; places rods in form and fixes them in position.

May reinforce concrete with wire mesh. May specialise in bending or fixing rods in position and be designated accordingly.

9-52.40 Cement Finisher.

Finishes surfaces of concrete structures and smooths surfaces of freshly poured concrete sections:

cuts ridges, bumps and projecting wire from concrete surface with chisel and hammer; patches holes and broken corners by wetting them, spreading cement mortar into them and smoothing surface with trowel or float; removes blemishes and uneven parts of surface by wetting or applying liquid mixture of sand, cement and water and rubbing with abrasive block; finishes surface by wiping with damp brush; smooths and shapes surface of freshly poured concrete surfaces with straight-edge and float for fine finish and edging tool to shape corners.

May specialise in a particular type of concrete finishing work and be designated accordingly.

9-52.50 Terrazzo Worker.

Applies to floors a durable, smooth surfacing composed of cement, sand, pigment and marble particles:

examines plans and specifications, places temporary wooden frames to define first layer of terrazzo floor; spreads sand and roofing paper on surface of foundation to prevent bonding between foundation and first layer; spreads mixed cement and sand on prepared surface forming first layer, smooths with trowel and float, strikes it off to level of temporary frame with straight-edge and removes frame; cuts grooves in first layer with trowel for metal division strips; presses division strips into grooves so that their top edges define final level for floor surface; spreads top layer with trowel and smooths it to approximately the level of metal division strips; scatters marble chips on surface and rolls them into it; grinds and polishes hardened terrazzo surface until smooth and level; fills interstices with wash of cement and plaster of Paris.

9-52.90 Other Reinforced Concreters, Cement Finishers and Terrazzo Workers.

This group includes reinforced concreters, cement finishers and terrazzo workers not elsewhere classified, for example those who repair floors, walls, tanks, vats and other concrete structural parts and equipment; cut, shape and fasten wire mesh for reinforcing concrete embankments and road surfaces; set expansion joints in concrete paving; cure new concrete by covering with mats and sprinkling water to prevent too rapid drying; operate machine to mix and spray concrete by compressed air to apply a protective coating through nozzle to steel, masonry or other surfaces.

9-53 Roofers

Workers in this unit group cover roof frameworks with one or more kinds of materials.

Their functions include:

covering roof frameworks with slates and tiles, synthetic materials, asphalt, metal sheets and thatching materials;

performing related tasks.

9-53.20 Slate and Tile Roofer.

Applies and fastens slates and tiles to roof frameworks:

covers roof framework with roofing paper, felt or other insulating material; measures location of each row of slates or tiles and marks chalk guidelines; fixes slates or tiles to roof sheathing by nailing, cementing or hooking in overlapping courses; cuts slates or tiles to fit ridges, valleys and edges of roof; seals ridge joint by cementing tiles along ridge with roofing cement; applies sheet metal strips bent to fit angles between roof and vents and walls, or between different roof surfaces; cleans surface of finished roof with diluted acid solution.

May punch holes in slates or tiles. May specialise in a particular kind of material and be designated accordingly. May replace broken slates and tiles. May do roofing with shingles of aluminium or asbestos.

9-53.30 Composition Roofer.

Covers roof frameworks with various kinds of synthetic material such as asbestos composition, fibro-cement, and corrugated plastic sheet:

measures and cuts roofing material to fit roof, corners, chimney base and other objects; fastens roofing material to roof base with nails, screws or cement; seals overlapping joints; applies sheet metal strips bent to fit angles between roof and vents and walls or between different roof surfaces.

9-53.40 Asphalt Roofer.

Covers top side (roof) of buildings with several layers of roofing paper and hot tar and final surface layer of gravel:

spreads hot tar over roof base; applies overlapping strips of roofing paper until entire roof is covered; cuts roofing paper to fit corners, chimney base and other objects; applies alternate layers of hot tar and roofing paper until roof covering is built up as specified; cuts strips of sheet metal or heavy tar paper and fixes them into angles between walls or vents and roof surface; applies heavy coat of hot tar over top layer of roofing paper and spreads gravel over tar.

9-53.50 Metal Roofer.

Covers roof with sheets of metal, such as galvanised iron, lead, copper and zinc:

selects metal sheet and marks it out according to plans or other specifications; cuts metal sheets according to pattern or template by hand or machine; positions sheets and assembles them by welding, brazing, bolting, riveting, screwing or other methods; cuts and applies strips of sheet metal bent to fit angles between roof and walls or vents, or between different roof surfaces; seals overlapping joints.

May cut, shape and fix channels, gutters and rain water pipes.

9-53.60 Roof Thatcher.

Constructs a thick roof covering with material such as straw, reeds, rushes and heather:

ties material in bundles; covers roof framework by fastening material to slats across rafters with tarred string, wire, straw ropes or osier strips; applies additional layers, affixing each with wood spars, until desired thickness is obtained; combs and trims surface and cuts eaves square with shears and special knives.

May soak material in fireproofing solution.

9-53.90 Other Roofers.

This group includes roofers not elsewhere classified, for example those who cover roofs and walls with wood shingles and those spraying asphalt, tar and gravel roofs with vinyl plastic solution to improve insulation.

9-54 Carpenters, Joiners and Parquetry Workers

Workers in this unit group cut, shape, assemble, erect and maintain various types of wooden structures and fittings, using hand and power tools.

Their functions include:

making, altering and repairing structural and other woodwork at work bench and on construction site;

constructing, erecting and installing heavy-framed wooden structures on building sites;

fitting and assembling internal and external fixtures of buildings such as doors, door and window frames, facings and panelling;

making, repairing, altering and fixing scenic equipment for theatrical performances and motion picture productions;

erecting temporary structures to support ships and constructing and installing wooden fixtures in ships under construction and repair;

constructing and repairing small wooden craft such as sailboats, motor boats, floats and pontoons;

altering, repairing and maintaining structural woodwork and wooden gear on board ship;

constructing, assembling and repairing wooden parts of aircraft;

cutting, shaping, fitting and assembling wooden parts, mainly at bench;

laying parquet floors;

performing related tasks.

Underground timberman is classified in 7-11.60, *Cabinetmaker* in 8-11.20.

9-54.10 Carpenter, General.

Cuts out, assembles, erects and repairs structural and other woodwork at work bench and on construction site:

works from plans, sketches or instructions received; selects wood and other materials to be used; marks out reference points according to pattern or plan to facilitate cutting and shaping; cuts and shapes wood by hand or machine tools, performing such operations as sawing, grooving, planing and sanding; assembles wooden parts using glue, screws, nails and other means; erects and repairs prepared workpieces such as rafters, wooden floors, partitions, windows, door frames and staircases; maintains and sharpens own tools; performs related tasks.

9-54.15 Construction Carpenter.

Cuts out, assembles and installs wooden frameworks of buildings, flooring, and other heavy-framed woodwork, such as pouring chutes and scaffolding, at building sites:

performs tasks similar to those of *Carpenter, general (9-54.10)* but specialises in on-site building carpentry.

May make concrete shuttering. May specialise in particular type of work and be designated accordingly.

Concrete shutterer is classified in 9-52.20.

9-54.20 Construction Joiner.

Fits, assembles and installs wooden internal and external fixtures of buildings such as door and window frames, facings and panelling:

performs tasks similar to those of *Carpenter, general (9-54.10)* but specialises in fitting, assembling, installing and repairing of wooden facings, panels, fixtures and fittings in workshop or on site.

May make parts of woodwork.

9-54.30 Stage and Studio Carpenter.

Makes, erects, alters and repairs stage sets and scenery fixtures for theatrical performances and motion picture productions:

makes wooden framework of scenery for theatrical and film-production purposes according to plans, sketches or instructions, performing tasks similar to those of *Carpenter, general (9-54.10)*; makes exterior surface by covering framework with canvas, paper, plywood or other material; repairs and alters sets.

May supervise arranging and shifting of scenery on stage, in studio or on location.

9-54.40 Wood Shipwright.

Erects temporary structures to support ship under construction or repair, checks fairing, makes and fits wooden parts of ship, prepares launching way and handles launching:

saws keel blocks to size, aligns and fixes them; builds cradle to support bottom shell of ship; erects shores and staging; checks that hull, frame and fittings of ship are properly aligned (fairing); makes and fits masts, cargo battens and structural bulkhead sheathings; cuts, fixes and caulks deck boards; makes and fits wooden framing and backing strips; directs placing of metal fittings and fixes or marks them for fixing; constructs, installs and greases launching ways; removes temporary structures and prepares ship for launching.

May erect beam and frame sections of skeleton of ship. May specialise in particular tasks and be designated accordingly.

9-54.45 Ship Joiner.

Constructs, assembles and installs wooden fittings such as deck-houses, bridge shelters, skylights, guard-rails, cabinets and berths in ships under construction or repair:

works according to plans, sketches or instructions; cuts, shapes, finishes and assembles wooden fittings and parts with hand and power tools; lays out and cuts partitions and panelling from wood or composition material; installs hardware, glass panels and insulation; lays wooden decking and linoleum.

May caulk seams of wooden decks and do cold-storage insulation work.

9-54.50 Wooden Boatbuilder.

Constructs and repairs small wooden craft such as sail boats, motor boats, floats and pontoons:

lays out plan, makes templates and selects and marks timber pieces; cuts and shapes keel and main timbers of boat and bends them in steam press or clamps; constructs framework by cutting, forming and fixing wooden ribs and sidings; cuts, forms and fixes external planking; caulks deck seams and hull; constructs and installs rudder, seats, engine mounts and other wooden fittings.

May install hardware, engine and electrical fittings. May specialise in type of craft made and be designated accordingly.

9-54.55 Ship's Carpenter.

Repairs and builds woodwork on board ship as member of crew:

repairs and builds woodwork on board ship, performing tasks similar to those of *Carpenter, general (9-54.10)*; keeps anchors and cables, wooden masts and cargo booms in good working order; replaces defective chains or stanchions on lifelines or guard-rails.

May sound bilges and water tanks at regular intervals to determine water level. May maintain steering gear and manipulate winches.

9-54.60 Aircraft Joiner.

Constructs, assembles and repairs wooden parts of aircraft:

studies plans and sketches; selects lumber or plywood stock of specified type and dimensions; lays out wood and marks it; cuts, shapes and bends parts for assembly and installation; places finished wooden structural parts in jig and checks assembly with measuring instruments; glues, nails and strengthens joints; attaches fittings; glues and nails wooden skin to framework; removes nails and smooths skin when glue has dried; repairs wooden parts and trimmings of aircraft.

May specialise in parts made or assembled and be designated accordingly.

9-54.70 Bench Carpenter.

Cuts out, shapes, fits and assembles wooden parts, mainly working at bench, to make and repair woodwork and wooden fixtures, such as doors, windows, staircases, panelling and simple furniture:

selects wood suitable for article to be made; marks out and cuts and shapes wood according to plan, sketch or instructions using hand tools and woodworking machines; fits wooden parts together by dovetailing, gluing or other means.

May assemble sections from ready-cut pieces. May specialise in particular product and be designated accordingly.

Cabinetmakers are classified in unit group 8-11.

9-54.75 Parquetry Worker.

Installs and repairs parquet flooring:

measures floor area; prepares floor base for parqueting; cuts and shaves wood pieces to fit at edges and angles; assembles parquetry wooden pieces and sets them according to design and other specifications; levels and polishes parquetry surface; replaces deteriorated sections in parquet floors with matching pieces.

9-54.90 Other Carpenters, Joiners and Parquetry Workers.

This group includes other carpenters and joiners not elsewhere classified, for example those who perform rough carpentry work in tunnels and mines or construct wooden bridges and wharves.

9-55 Plasterers

Workers in this group install laths and apply plasters to walls and ceilings of buildings.

Their functions include:

applying one or more coats of plaster to interior walls and ceilings of buildings to produce finished surface;

moulding and installing ornamental plaster panels and trimming and casting ornamental plaster cornices;

applying protective and decorative covering of cement, plaster and similar materials to outside building surfaces;

making and installing decorative plaster fixtures of fibrous plaster;

performing related tasks.

9-55.10 Plasterer, General.

Applies one or more coats of plaster to interior walls and ceilings of buildings to produce a finished surface:

fixes laths or insulating material to surfaces prior to plastering; applies first coat of plaster to surface with trowel, levels and smooths it; scratches surface to provide bond for second coat and shapes plaster border along sides of surface to provide guide for second coat; spreads second coat between borders, levelling it with rod and smoothing it with darby; applies finishing coat by spreading thin, uniform coat of white finishing plaster over second coat, smooths surface with trowel and finishes corners and angles with angle float; carries out interior ornamental plastering and plasters outside surfaces of buildings.

9-55.20 Ornamental Plasterer.

Moulds and installs ornamental plaster panels and trims and casts ornamental plaster cornices:

moulds and installs plaster panels by mixing plaster, shaping it with template and sawing hardened and shaped plaster to length; erects temporary support to hold mould in place, applies coat of plaster to surface and presses mould into position; casts plaster cornices by nailing wooden strip to surface as template guide; applies coat of plaster to surface and pushes template over plaster to shape and smooth it.

May make moulds for casting ornamental plaster. May specialise in affixing decorative precast mouldings.

9-55.30 Stucco Plasterer.

Applies protective and decorative covering of cement, plaster or other material to exterior building surfaces:

erects scaffold; applies first coat, pressing plaster into interstices of lathing or directly onto wall with trowel; roughens surface to facilitate bonding with second coat; applies second coat with trowel, levels it with straight-edge, presses it firmly with darby, scratches surface; allows second coat to cure several days, applying moisture daily; applies finishing coat with trowel, removes excess plaster with straight-edge, smooths coat with darby.

May fix wire mesh, laths or other retaining material to exterior surfaces before plastering. May mark finished plaster with brush or trowel or spatter it with sand, small stones or plaster to obtain protective or decorative finish.

9-55.40 Fibrous Plasterer.

Makes and installs decorative plaster fixtures of fibrous plaster:

makes mould in clay, gelatine or wax; pours plaster and other ingredients into mould; allows plaster to set and removes from mould; fixes sections and ornaments in place with nails or screws; fills joints between sections and covers nail holes with plaster.

May specialise in moulding or installing plaster fixtures and be designated accordingly.

9-55.90 Other Plasterers.

This group includes plasterers not elsewhere classified, for example those who maintain plaster work in good repair; apply special plaster for acoustical purposes; fasten metal or wooden laths to walls, ceilings and partitions to provide supporting base for plaster.

9-56 Insulators

Workers in this unit group apply insulating materials to buildings, boilers, pipes and refrigeration and air-conditioning equipment.

Their functions include:

applying slabs and sheets of insulating material such as cork and spun glass to walls, floors and ceilings of buildings;

blowing and packing insulating material such as mineral wool, shredded cork or asbestos into cavities between walls, floors and ceilings of buildings with power-driven machines;

applying adhesive, sound-absorbing material to ceilings and other surfaces with power-driven machines;

applying insulating materials such as asbestos, cork, felt and mineral wool to exposed surfaces of equipment such as boilers, pipes and tanks;

insulating refrigeration and air-conditioning equipment with such materials as cork and asbestos;

performing related tasks.

9-56.20 Building Insulator (Hand).

Applies slabs and sheets (bats) of insulating material, such as cork and spun glass, to walls, floors and ceilings of buildings:

examines plans and specifications; saws slabs to make them fit at ends of courses and to fit around outlets and fixtures; nails or wires bats of insulating material such as rock wool or spun glass to interiors of walls, topside of ceilings and on underside of roofs and floors; spreads hot asphalt on surface and embeds courses of cork slabs in it or spreads cement mortar with trowel on slabs and sticks them to surface; nails slabs to walls and ceilings to hold them firmly.

May construct interior insulating walls by fixing courses of compressed cork blocks one upon another with cementing substance. May finish cork surface of walls and ceilings with plaster or spread concrete over floor slabs to form wearing floor.

9-56.30 Building Insulator (Machine).

Blows and packs insulating material such as mineral wool, shredded cork or asbestos into cavities between walls, floors and ceilings of buildings with a power-driven machine:

carries hose nozzle to working position and inserts it into openings in walls, floors or ceilings; orders starting of compressed-air blower to force insulating material through hose; directs hose nozzle to distribute insulating material.

May insulate open spaces such as cupboards, walls or attic roofs by nailing sheets of insulating material to studs or rafters.

9-56.40 Acoustical Insulator.

Applies adhesive, sound-absorbing material to ceilings and other surfaces with power-driven machine to prevent sound reverberation:

prepares machine for operation by filling container with insulating material; starts machine and applies insulating material evenly to surface in required thickness by moving hose nozzle backwards and forwards.

Workers who fix acoustical boards to surfaces by hand are classified in 9-54.15.

9-56.50 Boiler and Pipe Insulator.

Applies insulating material such as asbestos, cork, felt or mineral wool to exposed surfaces of equipment such as boilers, pipes and tanks:

cleans surface of article to be insulated; binds heavy wires round article and attaches small tie-wires to them; applies base coat of asbestos mastic or insulating cement to surface or covers it with layer of other insulating material; covers base coat or layer with wire netting to reinforce insulating material; fastens netting in place with small tie-wires; applies one or more coats over wire netting and smooths final coat with trowel.

May cover article with felt bound with wire or gauze covered with plaster of Paris. May insulate pipes with strips of canvas or sacking. May apply paint or whitewash finish.

9-56.60 Refrigeration and Air-Conditioning Equipment Insulator.

Insulates refrigeration and air-conditioning equipment with materials such as cork and asbestos:

shapes, trims and smooths insulating sheets and blocks to cover and fit parts of equipment such as expansion chambers, condensers and piping; applies waterproof cement to insulating material and surfaces to be insulated and presses material on prepared surface; secures insulating material with wire and wire netting; applies one or more coats of asbestos plaster over wire netting with trowel; packs cavities in walls or partly assembled casing with sheets or loose particles of insulating material.

May apply insulating material to air ducts and pipes.

9-56.90 Other Insulators.

This group includes insulators not elsewhere classified, for example those cutting asbestos cloth, making it into blankets and fixing them to turbines to prevent loss of heat.

9-57 Glaziers

Workers in this unit group cut, fit and set glass in windows, doors, shop fronts and other frames.

Their functions include:

selecting glass panes or cutting panes to measure and fixing them in windows, doors and partitions of buildings;

fastening glass panes in puttyless rooflights;

installing flat and curved plate glass in shop fronts, swing doors, show-cases, portholes or other openings;

cutting, assembling and installing pieces of glass in lead or copper framework to form decorative windows and panels;

installing ordinary and shatter-proof glass panels in windows, doors and windscreens of vehicles;

performing related tasks.

9-57.20 Building Glazier.

Cuts and fixes glass panes in windows, doors and partitions of buildings:

lays sheet of glass on padded surface of table, places pattern on it or marks outline; cuts glass with cutting tool, following pattern or outline; breaks excess glass away by hand or with special tool and smooths rough edges; cleans recesses in sash in which pane is to be placed; mixes putty and spreads thin layer of it in sash recesses; presses pane into place and fastens it with glazier's points or spring clips; spreads and smoothes putty along inner edges of frame and against glass on both sides to form seal; removes excess putty.

May install glass in puttyless rooflights and install plate glass. May fix panes in position in wooden frames by tacking inner frame moulding to inside edges of frame.

9-57.30 Patent Roofing Glazier.

Fastens glass panes into puttyless rooflights:

measures recesses in frame of skylight and cuts strips of treated felt or similar material to size; fixes felt strips along sash members to pad recesses; places glass pane in padded recesses and fastens it with spring clips.

May use other methods of fastening panes. May make pavement lights by cementing glass prisms in frames of iron or concrete.

9-57.40 Plate-Glass Glazier.

Installs flat and curved plate glass in shop fronts, dividing walls, swing doors, show-cases, portholes and other openings:

measures frame, cuts, shapes, drills and screws metal drain moulding around window opening to provide holding frame for plate glass; places plate glass in holding frame, bedding it in putty or on cork, soft wood, leather, velvet or rubber strips; cuts and places metal face mouldings round edges of plate glass; drills holes through mouldings and bolts them together to hold plate glass firmly in position.

May measure and cut plate glass to shape and make templates for curving plate glass to order.

9-57.50 Leaded Glass Glazier.

Cuts, assembles and installs glass in lead or copper framework to form decorative windows and glass panels:

studies artist's designs, drawings and other specifications; cuts clear, ornamental or coloured glass into sections according to specifications; fits lead or copper framework around sections and solders intersecting joints; rubs putty or cement into gaps between glass and framework to stiffen it and make it airtight and watertight; puts horizontal bars in place to support window; solders metal ties to framework and secures them to bars; fixes decorative window or panel in position.

9-57.60 Vehicle Glazier.

Installs ordinary and shatter-proof glass panels in windows, doors and windscreens of vehicles such as trucks, buses, automobiles, railway coaches, tramcars and aircraft:

selects glass panel of appropriate size or cuts and prepares panel; installs glass in vehicle; fixes channelling rubber strips around sides to make window weather- and rattle-proof.

May make minor adjustments such as straightening bent metal window frames and repairing winding mechanisms. May specialise in fixing particular types of panels, such as windscreens. May remove damaged glass panels and install replacements.

9-57.90 Other Glaziers.

This group includes glaziers not elsewhere classified, for example those who install glass panels to form decorative facings on buildings.

9-59 Construction Workers Not Elsewhere Classified

Workers in this unit group perform miscellaneous construction and building maintenance tasks and are not classified elsewhere.

Their functions include:

performing tasks in several different building trades to build and repair structures such as houses, barns, shops and private garages;

maintaining structures such as office buildings, apartment houses, factories and similar establishments in good repair;

covering ceilings and interior walls of building with wallpaper;

performing maintenance, repair or construction work at unusual heights;

erecting temporary metal or wooden scaffolding on building sites;

demolishing buildings and other structures;

laying clay, concrete or cast-iron pipes in ditches to form sewers, drains or water mains or for other purposes;

digging water wells or deep pits for structural footings;

working under water in diving suit or wearing self-contained underwater breathing apparatus to perform duties in the construction, maintenance and repair of structures, ships, floating docks and harbour installations;

laying composition tile floors;

cleaning stone, brick and metal structures with sand or steam jet;

performing related tasks.

9-59.10 Housebuilder (General).

Constructs, alters and repairs small structures such as houses, barns, shops and private garages, performing tasks in several different building trades:

consults client regarding work to be done, and drafts plans and specifications where necessary; executes or supervises directly all of the construction work, or arranges for work such as bricklaying, painting, plumbing and electrical wiring to be done by sub-contractors; performs tasks similar to those of a number of building trades craftsmen according to his capacity, especially those of *Bricklayer (construction) (9-51.20)*, *Construction carpenter (9-54.15)*, *Building painter (9-31.20)*, *Plasterer, general (9-55.10)* and *Reinforced concreter (general) (9-52.10)*.

9-59.20 Building Maintenance Man.

Keeps structures such as office buildings, apartment houses, hotels and factory buildings in good repair:

performs concreting, bricklaying, carpentry, painting and other construction maintenance duties; replaces defective electrical switches and other fixtures; repairs plumbing fixtures.

May erect partitions and make minor repairs to simple mechanical equipment.

9-59.25 Paperhanger.

Covers interior walls and ceilings of buildings with wallpaper:

removes old paper with scraper, water and chemicals; cleans surface, fills cracks and holes with plaster and brushes sizing on surfaces; measures surfaces to be covered and cuts rolls of paper to required length; mixes paste and brushes paste on paper; places strips of paper on walls or ceilings, matching adjacent edges and smoothing paper in place with brush or felt roller; trims off ends of paper overlapping ceiling and baseboard lines, doors and windows.

May apply fabric or similar materials.

9-59.30 Steeplejack.

Performs maintenance, repair and construction work at unusual heights, such as painting smokestacks, flagstaffs or water tanks and repairing roofs, stonework or other parts of steeples and towers:

drives spikes into structures and hangs scaling ladder on spikes, repeating process until work location is reached; sets flying scaffold in place, works from that by reaching sideways and driving spikes along structure, hanging brackets on spikes and laying planks on brackets; performs maintenance, repair and construction tasks of a number of building trades, according to his ability, especially those of *Bricklayer (chimney* *building) (9-51.25), Construction carpenter (9-54.15), Building painter (9-31.20), Slate and tile roofer (9-53.20), Metal roofer (9-53.50)* and *Constructional steel erector (8-74.40).*

9-59.40 Scaffolder.

Erects temporary metal or wooden scaffolding on building sites for construction, renovation, exterior painting and similar purposes:

fixes upright members in place; secures horizontal members to uprights to support platforms; lays wooden platforms; fixes guard-rails, ladders and similar items in place; alters and extends scaffolding as work progresses; removes scaffolding when work is completed.

May erect and fix slings, suspended scaffolds and cradles. May specialise in metal or wood and be designated accordingly.

9-59.45 Demolition Worker.

Demolishes buildings with picks, crowbars, pneumatic hammers and other tools and salvages usable materials such as bricks, structural steel and timber:

takes necessary security precautions and decides where débris should fall; pries timbering, panelling and ceilings loose with crowbar; breaks down concrete and masonry with hammer, chisel, sledgehammer and pneumatic drill; fixes cables at convenient points to pull down walls with winch or tractor; directs labourers (demolition work) to remove material, shovel loose material into chutes, stack salvaged material, clean bricks for use and perform other labouring tasks.

May use oxy-acetylene cutting torch. May specialise in demolishing particular kinds of material such as reinforced concrete or particular parts such as roof or high walls and be designated accordingly.

9-59.50 Pipe Layer.

Lays pipes of glazed and unglazed clay, concrete, cast-iron and other materials in ditches to form sewers, drains, water mains and conduits for cables and other purposes:

smooths bottom of ditch to proper level and cuts out place for bell end of pipe; places rubber gasket in groove on straight end of pipe; assists in lowering pipe into ditch and places straight end of pipe into bell end of last section laid; sets pipe to grade and line by digging earth from under pipe or raising it with blocks, measuring grade and line with plumb-line and grade-pole; forces oakum or lead into pipe joints with caulking tool or fills joints of concrete and clay pipes with cement mortar.

May lay cast-iron pipes having straight ends and join them with couplings. May install valves and siphons. *Plumbers and pipe fitters* are classified in unit group 8-71.

9-59.55 Well Digger.

Excavates water wells and deep pits for structural footings:

excavates earth with pick, shovel and other tools; hoists earth and rock with tripod hoist and bucket sling; shatters rock with air-hammer equipped with demolition drill; sheaths pit walls with planks and props to prevent earth caving in as digging progresses.

May bail or pump water from well with hand pump or bucket.

Well drillers, borers and related workers are classified in unit group 7-13. Trench diggers are classified in 9-99.10.

9-59.60 Underwater Worker.

Works under water, dressed in diving suit, to inspect, repair, remove and install equipment and structures:

descends into water with aid of helpers on land, barge or boat and maintains communication by signal line or telephone; carries out various underwater tasks, such as laying and repairing bridge, pier and harbour-wall foundations; inspecting ship's hulls and underwater installations for suspected damage; reporting on condition of wrecked ships; removing obstructions; making minor repairs to ships' hulls and harbour installations.

May drill holes in rock for underwater blasting. May specialise in particular task and be designated accordingly.

Frogman (salvage) is classified in 5-89.90.

9-59.70 Composition Tile Layer.

Fixes composition tiles in building interiors for shock-absorbing, sound-deadening, floor-surfacing and decorative purposes:

examines plans and specifications; cleans and prepares floor or wall, filling holes and wide cracks with plastic or other material; coats surface with adhesive cement, lays foundation material on it, smoothing it with hand roller; marks lines on foundation to guide tile laying; spreads adhesive cement over foundation material as tile laying progresses; lays tiles on cement, following design; rolls finished floor to smooth it and bind foundation and covering tiles.

May heat tiles prior to laying. May specialise in a particular kind of tile such as asphalt, cork, linoleum or rubber, and be designated accordingly.

9-59.75 Building Exterior Cleaner.

Cleans exterior surfaces of stone, brick and metal structures by means of a jet of steam or sand from a hose nozzle:

erects scaffolding; sets up sand-blasting equipment and carries sand jet and water hose to working position; fits auxiliary nozzle to spray water simultaneously with sand jet; releases compressed air to force sand through hose nozzle, opens water hose valve and directs jets of sand and water over surface to be cleaned; washes down sanded surface with water jet; replaces worn rubber lining in sand jet nozzle.

May clean or finish surfaces with steam jet, brushes, scrapers or scouring solution. May point up masonry joints using trowel and mortar.

9-59.90 Other Construction Workers.

This group includes construction workers not elsewhere classified, for example those who shore up buildings in course of alteration, and adjoining buildings if necessary, with metal tubing, metal or wood beams and chocks; apply a durable asphalt, clay, sand, bituminous or asbestos-fibre surface to floors; pull sections of heavy cables through underground channels using winches and other equipment; specialise in placing and fixing in position assembled prefabricated building sections such as wall, ceiling and floor units.

9-6 STATIONARY ENGINE AND RELATED EQUIPMENT OPERATORS

Workers in this minor group operate equipment to produce electric power and control its distribution; operate and tend stationary engines and related equipment such as steam boilers, air and gas compressors, pumps, refrigeration plant, heating and ventilation systems and water treatment, waste disposal and similar types of equipment. They are classified in the unit groups listed below:

9-61 Power-Generating Machinery Operators.
9-69 Stationary Engine and Related Equipment Operators Not Elsewhere Classified.

9-61 Power-Generating Machinery Operators

Workers in this unit group operate equipment to produce electric power and control its distribution.

Their functions include:

controlling and operating a steam power-generating plant consisting of boilers, turbines, generators and associated equipment;
controlling hydraulic equipment at a hydro-electric generating station;
controlling a nuclear-power reactor to produce steam to drive electricity-generating equipment or other machinery;
operating steam or water-powered turbine to drive generators in electricity production;
controlling power output and distribution of electricity from power station according to demand;
performing related tasks.

9-61.20 Power-Plant Operator (Steam).

Controls and operates boilers, turbines, generators and auxiliary equipment at electricity-generating plant:

monitors control board, regulates equipment and adjusts controls connected with operation; controls operation of boiler auxiliary equipment, such as water and vacuum pumps, coal driers and pulverisers, steam condensers and soot blowers; adjusts boiler controls to provide steam for varying turbine loads; synchronises incoming generating units with units in operation; monitors gauges to determine effect of generator loading on related equipment; notes malfunctions of equipment, instruments and controls on log sheet.

9-61.30 Hydroelectric Station Operator.

Controls electrical generating units and related mechanical and hydraulic equipment at hydroelectric generating station:

operates switchboard and manually operated controls to control water-wheels, generators and auxiliary equipment; regulates power output of the different generating units according to the demand for power; operates feeder switchboard to control distribution of electric power over feeder circuits between generating station and substations; notifies reservoir keeper when additional water pressure is needed to drive water-wheels at satisfactory speed; records control board meter and gauge readings and inspects operating equipment.

9-61.40 Power-Reactor Operator.

Controls nuclear reactor to produce steam power to drive electricity-generating equipment or other machinery:

adjusts controls to start and shut down reactor and to regulate flux level, reactor period, coolant temperature and rate of flow, control rod positions and other control elements that affect power level within reactor, following standard instructions and prescribed practices; communicates with other workers to co-ordinate operation of auxiliary equipment, including pumps, compressors, switchgears and water treatment systems.

May assist in preparing, transferring, loading, and unloading nuclear fuel elements. May control operation of auxiliary equipment such as turbines and generators.

9-61.50 Turbine Operator (Power Station).

Operates a steam or water-powered turbine which drives generators for producing electricity:

starts turbine or directs helpers to do so; runs turbine at low speed for predetermined length of time and notifies switchboard operator when ready to run turbine at full working speed; increases speed of turbine and ensures that automatic regulator maintains correct working speed; notifies switchboard operator when turbine can be synchronised with other power units in plant; observes gauges and meters to see whether turbine can handle load and is working efficiently; alters power output of turbine and makes other adjustments as necessary.

May keep records of instrument readings.

9-61.60 Power-Switchboard Operator.

Regulates the amount of electricity generated in a power station according to demand:

determines number of generator units needed in operation by observing load indicators or by interpreting electrical load dispatcher's orders, and notifies generating room of pending load changes; adjusts controls to synchronise newly started generating units with units in operation; observes indicating instruments to determine when generator is synchronised and pulls switch to connect generator output to busbar receiving electricity from group of generators; disconnects generator from busbar to decrease power output or to cut out malfunctioning unit and equalises load among remaining operating generators; keeps records of switching operations and takes regular readings of output of generators.

9-61.70 Load Dispatcher (Electric Power).

Controls the supply and distribution of electricity from power stations to ensure that consumers' demands are met:

prepares or receives estimates of loads; makes requests by telephone for production of energy and subsequent distribution to lines on the basis of allocation of load, equipment available and interconnection with other power systems; redistributes loads, directs switching and makes other arrangements to maintain service in emergency situations; notifies proper authorities of conditions needing attention; keeps records of normal and emergency operations performed during period of duty.

9-61.90 Other Power-Generating Machinery Operators.

This group includes other power-generating machinery operators not elsewhere classified, for example those who assist power-generating plant operators in power stations; control feeder switchboards in power substations; operate power-generating plant servicing an individual industrial or other establishment.

9-69 Stationary Engine and Related Equipment Operators Not Elsewhere Classified

Workers in this unit group operate and service stationary engines and related equipment.

Their functions include:

operating and servicing various types of stationary engines and related mechanical equipment;

operating and servicing a particular type of stationary engine or installation such as compressor, steam boiler, pumping equipment, water treatment plant, incinerator, refrigeration unit, ventilation and heating installation;

performing related tasks.

Crane and hoist operators, including *Opening-bridge operator*, are classified in unit group 9-73.

9-69.10 Stationary Engine Operator (General).

Operates and services various types of stationary engines and related mechanical equipment such as prime movers to drive machinery (other than generators), compressor units, pumps, refrigeration and ventilation equipment and similar installations:

checks and adjusts controls and starts engine; observes gauges and meters which indicate engine's performance and operating conditions, such as temperature and oil pressure, and makes further adjustments if necessary; maintains supply of fuel, lubricates working parts, tightens loose parts and performs other servicing tasks to keep engine in good running order; makes minor repairs.

9-69.20 Air-Compressor Operator.

Operates and services a compressor which generates and supplies compressed air to pneumatic tools, hoists or other equipment:

starts power unit and builds up required pressure; manipulates controls or sets automatic regulator to maintain supply of air to equipment; observes pressure, temperature and other gauges and makes further adjustments to controls as necessary; cleans and oils equipment, tightens loose parts and performs other servicing tasks to keep the compressor in good running order.

May connect pipelines from compressor to equipment and make minor repairs.

9-69.25 Gas-Compressor Operator.

Operates steam or internal combustion engines to transmit, compress or recover gases, such as butane, nitrogen, hydrogen and natural gas, in various production processes:

moves controls and turns valves to start compressor engines, pumps and auxiliary equipment; monitors meters, gauges and recording instrument charts to ensure specified temperature, pressure and flow of gas through system; observes operation of equipment to detect malfunctions; records instrument readings and operational changes in operating log.

May operate purification tanks or tend pumps. May be designated according to type of gas compressed.

9-69.30 Boiler Fireman.

Tends one or more boilers which produce steam for heat or power:

manipulates valves to maintain required level of water in boiler; shovels fuel into firebox and pokes fire to obtain maximum heat or sets device which feeds gas, oil or other fuel automatically; checks temperature and pressure of steam by reading gauges and feeds fuel or adjusts stoking mechanism accordingly.

May remove ashes from ash pans, clean boilers and flues, and condition boiler water by adding chemicals.

Ship's fireman is classified in 9-82.20, *Railway steam-engine fireman* in 9-83.30.

9-69.40 Pumping-Station Operator.

Operates pumping and siphoning equipment to transfer liquids, gases, semi-liquids and powdered substances from one location to another:

opens and sets valves and controls by manipulating switches, levers and wheels to start and operate turbine- and motor-driven pumps; reads and interprets flow-meters and pressure and level gauges; regulates equipment according to needs or instructions; lubricates moving parts of machines, makes repairs and adjustments; maintains logs concerning quantities pumped, utilisation of equipment and other matters.

May operate hydroelectric equipment to generate power for operating water-pumping equipment. May pump a particular type of liquid such as crude oil or non-liquid substance and be designated accordingly.

Pumpman (petroleum refining) is classified in 7-45.30.

9-69.50 Water Treatment Plant Operator (Waterworks).

Controls treatment plant equipment to purify and clarify water for human consumption and industrial use:

controls flow of raw water into plant by starting and regulating operation of electric motors, pumps and valves; adds specified amounts of chlorine, ammonia, lime or other chemicals to disinfect, deodorise and clarify water, or adjusts automatic devices which admit chemicals in controlled dosages; starts agitators to mix ingredients; allows impurities to settle to bottom of tank and removes them by filtering water through filtering material; pumps purified water into water mains; monitors control panel meters and gauges to determine rate of flow and other factors; manipulates switches to adjust distribution of water; cleans tank and filter beds; lubricates moving parts of machines and makes minor repairs and adjustments.

9-69.60 Incinerator Plant Operator.

Controls equipment to burn garbage and other refuse in incinerator plant:

directs workers in feeding waste material into furnace; starts air-draught blower and turns valve to admit liquid or gaseous fuel, or signals to workers to shovel coal into furnace; lights furnace and observes and adjusts combustion control devices; moves levers to open grates for ash removal; turns valve on waterline to sprinkle and settle ashes.

9-69.70 Refrigeration System Operator.

Operates a refrigeration system for preserving foods, providing cooling media for industrial processes, cooling buildings or for other purposes:

starts and stops electric motors, pumps, compressors, coolers or other equipment related to refrigeration system, as required; observes thermometers, pressure gauges and other instruments relating to performance of engines and operating conditions in the plant; operates switches, rheostats and other controls to maintain the desired temperature; cleans and resets electric motor brushes, replaces burned fuses and defective recording devices, thaws frozen valves, cleans equipment and performs other tasks to keep system in good running order.

May keep records of temperatures inside cooling system.

9-69.80 Heating and Ventilation Equipment Operator.

Controls and services electric motors, fans and other equipment in heating and ventilation systems:

operates fans, electric motors, air-cooling, heating and purification equipment; regulates speed of fans and adjusts dampers in heating and ventilating ducts as required; lubricates moving parts; cleans and replaces thermostats and electric motor brushes; tightens loose parts and performs other servicing tasks to keep system in good working order.

9-69.90 Other Stationary Engine and Related Equipment Operators.

This group includes stationary engine and related equipment operators not elsewhere classified, for example those who operate watersheds by controlling gates and valves in aqueducts and dams to regulate flow of water; operate sewage plant equipment to purify waste water; operate and maintain desilting basin to remove silt from water entering irrigation system; operate a cremation furnace to dispose of human bodies.

9-7 MATERIAL HANDLING AND RELATED EQUIPMENT OPERATORS, DOCKERS AND FREIGHT HANDLERS

Workers in this minor group perform freight handling tasks, such as loading and unloading ship and aircraft cargoes and other freight, including petroleum, wrapping objects, packing liquids, materials and objects in containers, affixing labels and making marks on containers and operating baling presses; rig cables, wires and ropes for lifting, hauling and other purposes, and splice cables; operate cranes and other hoisting equipment; operate machines to excavate, grade, level and compact earth, mix concrete and lay road surfaces of asphalt and concrete; operate specialised vehicles (not used for road transport) to lift, move, dump and stack materials in warehouses, on mining and construction sites and in timber yards and other establishments; and perform related tasks such as operating conveyors and aerial ropeways. They are classified in the unit groups listed below:

9-71 Dockers and Freight Handlers.
9-72 Riggers and Cable Splicers.
9-73 Crane and Hoist Operators.
9-74 Earth-Moving and Related Machinery Operators.
9-79 Material Handling Equipment Operators Not Elsewhere Classified.

9-71 Dockers and Freight Handlers

Workers in this unit group load and unload freight, carry goods in warehouses and markets, pack and label materials and products for distribution or transport, operate baling presses, and perform related freight handling tasks.

Their functions include:

loading and unloading ships' cargoes; loading and unloading goods carried in trucks, wagons and other land vehicles;

loading and unloading aircraft cargoes;

connecting hose lines between shore installations and tanks of ships to load and unload liquids;

carrying and stacking goods by hand in warehouse or market;

wrapping objects;

packing liquids, materials and objects in containers;

affixing labels and making identification and other marks on containers;

operating a baling machine to compress and bind materials into bales;

performing related tasks.

9-71.20 Docker.

Loads and unloads ships' cargoes:

carries goods from quayside into ship's hold, or vice versa, or places them in position for removal by mechanical means; stows cargo in position in hold so as to conserve space and prevent damage in transit; sorts cargo on quay or in quayside warehouse before and after loading or unloading.

May count, weigh, measure goods and mark identifying information on them. May load and unload trucks. May specialise in a particular task and be designated accordingly.

Workers who are occupied mainly in operating cranes or winches are classified in unit group 9-73.

9-71.30 Railway and Road Vehicle Loader.

Loads and unloads goods carried in trucks, wagons and other vehicles:

loads and unloads land transport vehicle by hand, using hand truck, skids, bars, jacks and similar equipment; stows articles to form a compact load and to avoid damage in transit and facilitate unloading.

May secure load with ropes or other fastenings, place padding on articles to prevent breakage and secure wagon covers. May be designated according to type of vehicle or material handled.

9-71.35 Aircraft Loader.

Loads and unloads aircraft cargoes:

stows cargo according to size, weight, type and destination of goods, following general loading instructions; removes cargo from aircraft.

May weigh cargo before loading and keep record of loaded and unloaded items. May secure cargo with tie-ropes or other fastenings and pad articles to prevent breakage.

9-71.40 Boat Loader (Liquids and Gases).

Connects hoses between pipes of main shore installation and tanks of barges, tankers and other ships to load and unload petroleum, liquefied gases and other liquids:

ties lines to hose, swings one end of hose into position with winch and boom and connects it to valve on pipeline ashore; swings other end onto ship and connects it to tank valve or inflow pipe; attaches wire to hose and ground to prevent possible explosion due to static electricity generated by liquid flow; opens gate valve to allow liquid to flow through hose and notifies pumpman to start pumping to load or unload boat; disconnects hose when operation completed; cleans hose with steam or water.

9-71.45 Warehouse Porter.

Carries and stacks goods in warehouse, market or similar establishment:

carries goods within the warehouse or market; loads, unloads and propels hand truck; stores articles in bins and on shelves according to instructions.

May load or unload road trucks or wagons, operate a conveyor, elevator or stacking machine, pack and weigh materials and mark identifying information on them.

Stock clerks are classified in unit group 3-91.

9-71.50 Hand Packer.

Packs materials or products by hand in cartons, wooden boxes, crates, kegs and other containers for shipment or storage:

wraps article in paper, shavings, corrugated cardboard, cloth or other material; folds, stacks or arranges small articles in container or secures large articles to wooden base with bolts, metal straps or other fasteners.

May clean surfaces before packing, brush heavy oil on metal articles to prevent rust, seal containers, reinforce containers with wire or metal bands and mark or label containers. May be designated according to type of container used or article packed.

9-71.55 Machine Packer.

Operates a machine to carry out one or more tasks in wrapping objects or packing articles and liquids in containers for shipment or storage:

prepares and starts machine and watches functioning to detect faults; stops machine, remedies faults or reports them to supervisor; makes minor adjustments to machine setting and guides; ensures that packets, cans, bottles or other containers are filled according to instructions; removes damaged articles and faulty containers.

May feed machine, conveyor or machine hopper with products to be wrapped or packed and with packing materials such as paper and glue. May place container in machine and press button or pull lever to fill it. May keep records of articles packed. May be designated according to particular task performed or machine operated.

9-71.60 Machine Labeller.

Operates a machine which glues labels and revenue stamps on articles and containers:

adjusts feed hoppers and guides to size of label and article to be labelled; regulates feeding mechanism and pressure of applicator rolls; loads machine with labels and glue; starts machine, feeds containers into machine, or starts automatic conveyor, and watches functioning to detect faults; remedies faults or reports them to supervisor; removes damaged articles and labels from machine.

9-71.70 Bale-Press Operator.

Operates machine to compress and bind loose materials into bales to facilitate handling:

places materials in compression chamber; moves lever causing ram to compress materials; threads tie-bands around bale and tightens them by twisting or clamping ends; releases ram and removes bale from compression chamber.

May weigh materials before compressing. May line compression chamber with paper, burlap or other material for covering bales. May be designated according to type of material baled. May use hand press.

9-71.90 Other Dockers and Freight Handlers.

This group includes dockers and freight handlers not elsewhere classified, for example those who carry hand baggage at railway stations, airports and piers; pack and load furniture and other household effects into vans and carry these items from vans into living quarters.

9-72 Riggers and Cable Splicers

Workers in this unit group erect tackle for lifting and hauling and install and maintain cables, ropes and wires on construction, and oil and gas well-drilling sites, in ships and aircraft and other places.

Their functions include:

setting up various types of lifting tackle to move machinery and other heavy objects about workshops, shipyards or other locations;

joining, repairing and fitting attachments to wires, hemp ropes and cables by splicing;

setting up lifting cages, mobile platforms and other hoists for raising and lowering materials and construction workers;

installing and repairing ropes, wires and cables on ships;

installing cable connections between cabin controls of aircraft and ailerons, rudders and fins;

working as member of crew erecting and repairing derricks for drilling oil and gas wells and installing cables, hoisting and drilling equipment;

working as member of cable crew to build up, fit and install wire cables in the construction of suspension bridges;

performing related tasks.

9-72.05 Hoisting Equipment Rigger (General).

Sets up various types of lifting tackle and directs its use in moving machinery and other heavy objects about factories, shipyards or other locations:

examines object to be moved, estimates weight and decides type of equipment to be used; erects temporary jib or derrick if necessary and installs cables, pulleys and other tackle; selects or makes grappling equipment and attaches it to load; guides crane or winch operator by hand signals to move load to desired position; splices wire and hemp ropes when erecting and repairing equipment.

9-72.10 Rope and Cable Splicer (General).

Joins, repairs and fits attachments to wire and hemp ropes and cables by splicing:

cuts out damaged parts of cables; joins cables by opening up ends and interweaving strands (splicing); fits end of cable around hooks, eyes and other attachments and splices end back into cable; binds joints and cable ends.

Electric cable jointer is classified in 8-57.50.

9-72.20 Hoisting Equipment Rigger (Construction).

Sets up lifting cages, mobile platforms and other hoists for raising and lowering materials and workers employed on construction work:

erects framework, derrick or jib for hoist; selects and fits pulleys, cables and other lifting tackle; hangs working platforms and erects safety scaffolding; inspects operation and security of equipment and makes necessary adjustments.

May connect power winding unit to hoist. May operate hoist.

9-72.30 Ship Rigger.

Installs and repairs ropes, wires and cables on ships:

lays out and cuts cable, wire and rope for such parts as shrouds, braces, lifelines, radio aerials, lifting gear and rigging attached to masts, spars and booms; splices cables and wires as required; nails, bolts or ties rigging in place; tests rigging and lifting gear for proper functioning and makes necessary repairs and alterations.

May install hatch and boat covers and other canvas equipment.

9-72.40 Aircraft Rigger.

Installs cable connections between cabin controls of aircraft and ailerons, rudder, fins and other parts:

positions pulleys, guides and brackets in tail, wings and fuselage structures according to plans; passes cables through pulleys and holes, adjusts tension and fastens cable ends to moving parts; checks operation of controls and makes necessary adjustments to cables.

9-72.50 Oil and Gas Well-Drilling Rigger.

Works as member of crew in erecting and repairing derricks used for drilling oil and gas wells and installing cables, hoisting and drilling equipment:

erects and installs working platform; selects and places sheave blocks, tackle and cables; splices cables; draws cable through sheave blocks; fastens cables to fixed objects for anchorage.

May assist in erecting and dismantling drilling rig.

9-72.60 Suspension Bridge Cable Worker.

Works as member of cable crew to build up, fit and install wire cables in the construction of suspension bridges:

directs operator of machine which moves sheave carrying a loop of wire across bridge; informs operator when sheave reaches anchoring point; places wire in proper relationship to wires already carried across and fixes end of wire in tensioning clamp; stretches wire and secures it to adjoining wires when required tension is obtained; removes end of wire from tensioning clamp and shapes group of built-up wires with circular-jawed tongs to form cable strand; repeats operation to build-up required number of strands; fits hydraulic clamp around strands and operates clamp to squeeze strands into cylindrical cable; binds end of cable with wire.

9-72.90 Other Riggers and Cable Splicers.

This group includes riggers and cable splicers not elsewhere classified, for example those erecting and installing cable systems for overhead cable railways and other aerial ropeways; those performing rigging tasks in connection with logging operations.

9-73 Crane and Hoist Operators

Workers in this unit group operate cranes and other hoisting equipment.

Their functions include:

operating a bridge or gantry crane in which the lifting gear can be moved along an overhead bridge which moves on rails;

operating a stationary crane equipped with jib (boom);

operating a crane consisting of a turning metal tower, mounted on rails, equipped with a mobile or fixed jib (boom);

operating a crane mounted on wheels or crawler tracks and movable under its own power;

operating powered hoisting equipment, usually consisting of a mobile cage or platform to raise or lower materials and men on construction work;

operating power-driven equipment to raise or lower cages or skips carrying materials or men in a mine;

giving signals controlling movement of cages used to raise or lower men, cars and supplies between various levels and surface of mine;

operating hauling or lifting device consisting mainly of a cable and a hand- or power-driven drum;

controlling opening and closing of bridge for the passage of road or water traffic;

performing related tasks.

9-73.20 Bridge- or Gantry-Crane Operator.

Operates power-driven crane in which lifting gear can be moved along an overhead bridge which moves on rails:

switches on power supply; operates controls to move bridge along rails and lifting gear along bridge to reach loading point; lowers lifting tackle for load to be attached; raises, moves and lowers load to desired position; frequently operates crane in accordance with signals from ground.

May be designated according to type of work performed or materials moved.

9-73.25 Stationary Jib-Crane Operator.

Operates a stationary crane equipped with a mobile jib (boom):

checks jib and cables for security and serviceability; starts crane motor; operates controls to swing, raise or lower jib and place lifting tackle so that load can be attached; raises, moves and places load in desired position.

May operate crane in accordance with signals from other workers. May operate crane with mechanical grab attached to lifting tackle.

9-73.27 Tower-Crane Operator.

Operates a crane consisting of a turning metal tower which moves on rails, equipped at the top with a mobile jib (boom) or a fixed jib along which a car supporting the hoisting equipment moves:

checks that crane is properly balanced and cables run correctly through pulleys; operates levers to control rotary and other movements of tower or car, height of jib and raising or lowering of lifting equipment; ensures load does not exceed maximum permissible and checks stability of crane under influence of load and wind; maintains crane in good working condition.

May effect minor repairs.

9-73.30 Mobile-Crane Operator.

Operates a crane mounted on wheels or crawler tracks which can be moved under its own power in any direction:

drives crane to work site; starts crane motor and manipulates controls to position crane, crane jib (boom) and lifting tackle so that load can be attached; raises, moves and places load in required position.

May direct helpers who drive crane into position. May drive crane with mechanical grab attached to lifting tackle.

Operators of excavating, pile-driving and similar machines are classified in unit group 9-74.

9-73.35 Hoist Operator (Construction).

Operates power-driven hoisting equipment, usually consisting of mobile cage or platform, to raise and lower materials and workers employed on construction work:

ensures that cables and hoisting equipment are in good working order; loads or oversees loading of cage, platform or other device connected to hoist; starts motor and moves levers to raise or lower load to required point; moves lifting tackle to fresh position when unloading completed.

May raise and lower hoist in response to signals from other workers.

9-73.40 Hoist Operator (Mine).

Operates power-driven equipment to raise and lower mine cages carrying workers and full or empty cars (skips):

starts motor and manipulates controls to raise or lower cage in response to signals given by *Mine cageman (9-73.45)* at bottom or top of mine shaft; stops winder when dial indicator shows that cage has reached required level.

9-73.45 Mine Cageman.

Gives signals for movement of cage used to raise and lower men, cars and supplies between various levels and surface of mine and loads and unloads cage:

directs movement of cage by signalling *Hoist operator (mine) (9-73.40)* by electric bell or buzzer; pulls empty cars from cage and runs them to station sidings for distribution in mine; runs full cars into position near shaft and loads them in cage.

May pull loaded cars from cage at top of shaft and replace them with empty ones.

9-73.50 Winch Operator.

Operates a hauling or lifting device consisting essentially of a cable and winding drum rotated by hand or power unit:

ensures cable, winch drum and winch brake are in good working order; threads cable through pulley wheels and adds additional pulley wheels if necessary; connects end of cable to object to be moved or directs helpers to do so; starts winch engine or turns winch handle to raise or pull object into position, adjusting speed and applying brake as necessary.

May control winch in accordance with signals from other workers.

9-73.55 Opening-Bridge Operator.

Operates controls to open bridge for the passage of water traffic and close bridge for use by road vehicles:

operates electrical or other machinery to open or close bridge; operates warning lights and semaphore signals to indicate position of bridge and impending movement; keeps bridge equipment in good working order.

May make minor repairs.

9-73.90 Other Crane and Hoist Operators.

This group includes crane and hoist operators not elsewhere classified, for example those operating cranes mounted on railcars or floating platforms.

9-74 Earth-Moving and Related Machinery Operators

Workers in this unit group operate machines to excavate, grade, level and compact earth and similar materials, mix concrete and lay road surfaces of asphalt and concrete.

Their functions include:

operating an excavating machine, mounted on wheels or crawler tracks, equipped with movable shovel, grab-bucket or dragline bucket, to excavate and move earth, rock, sand, gravel and similar material;

operating a machine for digging trenches for sewer, drainage, water, oil, gas and similar pipelines;

operating a machine equipped with concave steel blade to move, distribute and level earth;

operating dredging equipment to remove sand, gravel and mud from bottom of a body of water;

operating a machine equipped with compressed air, steam or drop-hammer to drive wooden, concrete or steel piles into dry ground or bottom of a body of water;

operating a machine equipped with scraper or scoop to level construction sites, roadways, airport runways and other ground;

operating power roller to compact and smooth layers of material in making roads, pavements and similar work;

operating a machine which spreads and smooths concrete to construct concrete roadways;

operating a machine to spread bituminous or tar preparations on roads;

operating a transportable machine to mix sand, gravel, cement and water to make concrete at construction site;

operating central concrete-mixing plant;

performing related tasks.

9-74.20 Excavating-Machine Operator.

Operates a power-driven machine, mounted on wheels or crawler tracks, equipped with movable shovel, grab-bucket or dragline bucket to excavate and move earth, rock, sand, gravel and similar material:

starts engine, drives machine to working point on site; moves levers or pedals to direct shovel or bucket into working position, fill it with material and lift it to dumping location; opens shovel or up-ends bucket to place material in truck or on dump; moves machine backwards and forwards as necessary; oils and greases machine, fills with fuel and makes minor repairs.

May operate a particular type of machine and be designated accordingly.

9-74.25 Trench-Digging-Machine Operator.

Operates power-driven machine equipped with an endless bucket-chain to dig trenches for sewer, drainage, water, oil, gas and similar pipelines:

starts engine and controls movement of crawler treads to move machine into position; operates levers to start, stop, raise or lower excavating mechanism until required depth is obtained; makes minor repairs to machine.

May set up lines along which machine is guided.

9-74.30 Bulldozer Operator.

Operates mobile power-driven machine equipped with concave steel blade to move, distribute and level earth:

starts motor and adjusts hand lever to regulate height of blade from ground; drives machine to push earth and operates levers to level and distribute it; lubricates, fuels and makes minor repairs to machine.

May push or pull other equipment with bulldozer. May level and clear demolition sites with bulldozer.

9-74.35 Dredge Operator.

Operates various kinds of excavating equipment, mounted on a dredge, to remove sand, gravel and mud from bottom of body of water:

starts and stops engines operating excavating equipment; watches tide gauge and adjusts mechanism to keep work uniform; manipulates levers, hand wheels and other devices according to type of equipment in use (dipper or hinged bucket, endless bucket chain or suction pipe) to excavate, load and unload material.

May make minor repairs. May dredge mineral-bearing earth. May be designated according to type of equipment used.

9-74.40 Pile-Driver Operator.

Operates a power-driven machine equipped with power hammer or drop-hammer to drive wooden, concrete or steel piles into dry ground or bottom of body of water:

moves hand and foot levers to move machine into position; hoists pile and lowers it into position for driving; manipulates controls to operate hammer; makes adjustments to hoisting engine and hammer; assists in repairing and maintaining machine.

May operate air compressor when using pneumatic power hammer.

9-74.45 Road-Grader and Scraper Operator.

Operates a tractor-drawn or self-propelled scraper or scoop to level ground for construction of buildings, roadways, airport runways and other purposes:

drives a tractor with attachments, or a self-propelled grader and scraper or scoop; manipulates levers to regulate height of the grader and scraper blade, or the lower edge of scoop; manoeuvres machine to push loose earth and level the surface and to scrape away high parts of surfaces to desired level, or to displace and scoop up earth on high parts of surface and to discharge it elsewhere; makes minor adjustments and repairs to machine.

May operate a particular type of machine and be designated accordingly.

9-74.50 Road-Roller Operator.

Operates power-driven roller to compact and smooth layers of material such as rock, gravel, earth, concrete and asphalt to construct roads, pavements and runways and for other purposes:

fills water tanks if rollers are to be moistened; starts engine; drives roller backward and forward over surface until desired compactness and smoothness are obtained; oils and greases machine and makes minor repairs.

May operate special types of road roller, such as those equipped with scarifier to roughen or tear up surfaces, and be designated accordingly.

9-74.55 Concrete Paving-Machine Operator.

Operates a mobile paving machine to spread and smooth freshly poured concrete surfaces for concrete roadways under construction:

starts machine and controls its movement either along rails set on each side of new roadbed or on crawler tracks; lowers attachment to spread wet concrete dumped within forms; adjusts attachments to successively vibrate, screed, strike-off and float surface of concrete, spray on curing compound and cut expansion joints.

May operate machine with attachment to perform one of the above operations and be designated accordingly. May operate a mobile machine that mixes and pours concrete into forms for paving roadways.

9-74.60 Tar-Spreading Machine Operator.

Operates a tractor-drawn or self-propelled machine to spread bituminous or tar preparations on road surfaces:

keeps machine supplied with materials; controls temperature of material at time of use; directs movement of machine and controls material flow and thickness of layer according to instructions.

May maintain machine and make minor repairs.

9-74.70 Concrete-Mixer Operator.

Operates a transportable machine which mixes sand, gravel, cement and water to make concrete on construction site:

starts motor to rotate mixing drum; lowers pan to receive batch from chute (sand, cement, gravel) or shovels materials into mixing drum; admits measured amount of water to drum; discharges prepared concrete into carrying buckets; cleans and maintains equipment.

May estimate quantity of water required when automatic measuring tank is not provided.

9-74.75 Concrete-Mixing-Plant Operator.

Operates central concrete mixing plant to prepare batches of concrete according to orders:

starts power unit and opens hopper doors of gravel, sand and cement bins to allow materials to flow into scale hoppers for weighing; opens scale hopper doors to allow weighed material to pass into mixing drum; opens valve allowing water to flow from measuring tank into mixing drum; opens chute to discharge batch of mixed concrete from drum into conveyor or truck; controls batch timer and records number of batches; cleans mixer.

May repair and maintain mixer and power unit. May operate similar plant on large construction projects.

9-74.90 Other Earth-Moving and Related Machinery Operators.

This group includes earth-moving and related equipment operators not elsewhere classified, for example those who operate machines to bore holes for posts or poles.

9-79 Material Handling Equipment Operators Not Elsewhere Classified

Workers in this unit group perform tasks in operating material handling equipment not performed by workers classified in the preceding unit groups.

Their functions include:

operating lifting truck to move and stack goods in a warehouse, storeroom or other place;

operating dump-truck to transfer bulk materials on construction site, mining area or dumping site;

operating a self-propelled truck (shuttle-car) to transport minerals in a mine;

driving a self-propelled vehicle which carries loads of timber beneath its elevated frame;

operating other equipment for handling materials such as bucket and belt conveyors and aerial ropeways.

9-79.20 Lifting-Truck Operator.

Operates power-driven truck equipped with fork lift or lifting platform to pick up, transport and raise or mechanically stack bales, crates, cartons and similar objects in warehouse, storeroom, factory or other establishment:

drives truck to location of load; moves levers to position platform under load or push fork lift into baseboard of load and raise load; drives truck, often through confined spaces, to position desired, exercising care to prevent damage to goods; deposits load on floor or raises platform to desired height for stacking articles in piles or on shelves.

May carry out routine servicing of truck. May tow hand trucks. May load or unload truck by hand.

9-79.30 Dumper Driver.

Operates motorised tip-wagon (dump truck, not intended for transport by road) to transfer bulk materials such as earth, gravel, stone and minerals from one location to another on a construction site, mining area or dumping site:

positions dump truck to be filled with material from chute, excavator buckets, mechanical shovel or other means; drives loaded truck to unloading point and positions it for discharge into chute, storage bin or on dumping site; pulls lever to operate tipping mechanism; restores empty container to normal position and drives dump-truck to loading point.

9-79.40 Shuttle-Car Operator (Mine).

Operates self-propelled truck (shuttle-car) to transport minerals from working face in mine to conveyor or rail car (skip) loading chute:

drives shuttle-car to position its forward part under mechanical loader chute or conveyor at working face in mine; manipulates control levers to obtain even loading; drives shuttle-car to discharge ramp and pulls lever to unload; lubricates truck and makes minor repairs.

Engine-driver (mine and quarry), who drives a vehicle to haul skips along rails in a mine or quarry, is classified in 9-83.60.

9-79.50 Timber-Carrier Driver.

Drives a straddle truck to carry, beneath its elevated frame, logs, sawn timber or similar loads for short distances, usually within a timber yard, sawmill or other industrial establishment:

drives machine to position astride load to be carried; manipulates lever to cause clamps under frame of vehicle to grasp load and raise it a short distance above ground; drives machine to delivery point and moves lever to deposit load.

May service vehicle and make minor repairs to it.

9-79.90 Other Material Handling Equipment Operators.

This group includes material handling equipment operators not elsewhere classified, for example those who operate elevating, endless-belt, bucket, and chain conveyors, aerial ropeways and similar equipment.

9-8 TRANSPORT EQUIPMENT OPERATORS

Workers in this minor group drive vehicles and perform assimilated tasks related to the transport of passengers and freight by water-borne craft, land transport vehicles and pack animals. They carry out deck and engine-room duties aboard ship (under the direction of ships' officers, classified in 0-42 and 0-43) and aboard other water-borne craft, drive locomotives, manoeuvre railway coaches and wagons, operate railway signals and lighthouses, drive motor vehicles and motor-cycles, drive pack animals and vehicles drawn by animals, operate locks in canals and ports, dry-dock vessels, drive pedal vehicles and pull rickshaws and handcarts. They are classified in the unit groups listed below:

9-81	Ships' Deck Ratings, Barge Crews and Boatmen.
9-82	Ships' Engine-Room Ratings.
9-83	Railway Engine-Drivers and Firemen.
9-84	Railway Brakemen, Signalmen and Shunters.
9-85	Motor Vehicle Drivers.
9-86	Animal and Animal-Drawn Vehicle Drivers.
9-89	Transport Equipment Operators Not Elsewhere Classified.

Aircraft and ships' officers (including ships' deck officers and engineer officers) are classified in minor group 0-4; *Ship's carpenter* in 9-54.55. Ship's engine-room mechanics are classified in 8-49.90. *Transport conductors* are classified in minor group 3-6.

9-81 Ships' Deck Ratings, Barge Crews and Boatmen

Workers in this unit group carry out deck duties aboard ship under direction of deck officers and similar duties aboard other water-borne craft.

Their functions include:

supervising able seamen and other deck hands engaged on maintenance and repair of ship's deck equipment, boats and other gear, cleaning decks and renewing paintwork;

serving as senior deck hand to carry out such duties as steering ship, standing lookout, taking charge of lifeboats, setting up rigging and other gear;

serving as ordinary deck hand to assist able seamen and to perform deck cleaning, scale-scraping, painting and other maintenance duties;

performing related tasks.

Ship's carpenter is classified in 9-54.55.

9-81.20 Boatswain.

Supervises deck ratings engaged on cleaning and maintenance work aboard ship (except engine room):

inspects life-saving, cargo-handling and other ship's deck equipment, rigging, anchors, cables and sails and supervises crewmen engaged on maintenance and repair; supervises crewmen engaged on deck cleaning and maintenance, removal of scale and repainting of steel and woodwork.

May conserve and issue deck stores.

9-81.30 Able Seaman.

Serves as senior deck-hand on seagoing vessel:

stands lookout; steers vessel as directed; handles mooring lines on board; lowers and raises lifeboats; takes charge of lifeboats and other small boats; breaks out, rigs, overhauls and stows cargo-handling gear; splices wire rope and cordage; maintains lifeboats, life-saving gear, deck equipment and makes minor repairs; scrapes and cleans painted surfaces of vessel and repaints them; washes decks and maintains cleanliness of ship's hull, fittings, superstructure and cargo spaces.

May assist in stowing and discharging cargo. May have rank of petty officer and be designated according to particular duties, e.g. quartermaster.

9-81.40 Ordinary Seaman.

Serves as ordinary deck hand on seagoing vessel:

performs and assists in carrying out tasks similar to those of *Able seaman (9-81.30)*.

9-81.90 Other Ships' Deck Ratings, Barge Crews and Boatmen.

This group includes other ships' deck ratings, barge crews and boatmen not elsewhere classified, for example those who perform tasks of deck-hands on harbour vessels, canal barges, river boats, ferries and yachts; serve as crewmen on tugboats, cable ships, lightships and dredges; serve as members of land-based lifeboat crew; drive launches and motorboats.

9-82 Ships' Engine-Room Ratings

Workers in this unit group operate and maintain ships' engines, boilers and mechanical equipment on vessels afloat, usually under supervision of engineer officers.

Their functions include:

tending one or more boilers producing steam for ships' engines;

lubricating bearings, moving parts of engines and other mechanical equipment on board ship;

assisting engineer officers and engine-room mechanics in repair and maintenance of ship's engines and mechanical equipment;

performing related tasks.

Ship's engine-room mechanic is classified in 8-49.90.

9-83.20 Ship's Fireman.

Tends one or more boilers producing steam for ship's main and auxiliary engines:

fuels boiler by turning valves to regulate flow of oil or pulverised coal into firebox, shovelling coal into firebox or moving controls to regulate feeding speed of automatic stoker; ignites fuel with torch; maintains boiler water at required level and controls fuel supply and forced draught to burner to maintain specified steam pressure; shovels ashes or cleans oil jets, filters and burner barrels and cleans work area using steam, solvent and rags.

9-82.30 Ship's Oiler and Greaser.

Lubricates bearings and moving parts of engines and other mechanical equipment on vessel afloat:

makes regular rounds of machinery, checks gauges and thermometers and adjusts pressure and flow of lubricants to working parts of machinery; fills lubricant dispensers and renews oil in sumps; pours oil and applies grease with grease-gun at specified points of machinery not automatically lubricated; assists engineers and engine-room mechanics in overhauling and repairing engines and other shipboard machinery.

May clean machinery and engine room. May be designated "motorman" on a motor vessel.

9-82.90 Other Ships' Engine-Room Ratings.

This group includes ships' engine-room ratings not elsewhere classified, for example those who perform cleaning tasks in engine and boiler rooms.

9-83 Railway Engine-Drivers and Firemen

Workers in this unit group drive, or assist in driving, railway engines to transport passengers and freight.

Their functions include:

driving or assisting in driving a steam, electric or diesel-electric railway engine;

firing and attending to boiler of a steam locomotive;

driving an underground or elevated passenger train;

driving a locomotive to haul cars underground or on surface of mine or quarry;

performing related tasks.

9-83.20 Railway Engine-Driver.

Drives steam, electric or diesel-electric railway engine to haul passenger and freight trains:

controls movement of train according to train orders, train schedules, signals given by other members of train crew and signals along route; inspects engine at beginning and end of each run; lubricates mechanism and makes minor repairs and adjustments during run.

May be designated according to type of engine driven. May give engine-driving instruction to trainee drivers.

9-83.30 Railway Steam-Engine Fireman.

Fires and attends to boiler of steam locomotive:

manipulates valves to control flow of oil fuel to burner, or feeds coal into firebox with hand shovel or mechanical stoker; maintains steam pressure and water at required levels; checks and replenishes supplies, such as sand (to aid traction), fuel and water, to ensure safe, efficient operation during run; inspects locomotive to detect worn and damaged parts; observes track to detect obstacles and checks train as it goes around curves to detect dragging equipment and smoking journal boxes; assists driver in observing signals and following train orders and schedules.

9-83.40 Assistant Railway Engine-Driver.

Assists driver of electric or diesel railway engine:

assists driver in observing signals, following train orders and train schedules and in making minor repairs and adjustments during run; observes oil, temperature and pressure gauges to ensure that engine is operating safely and efficiently; observes track to detect obstacles, and checks train as it goes around curves to detect dragging equipment and smoking journal boxes; drives engine in emergency.

May be designated according to kind of locomotive.

9-83.50 Underground or Elevated Train Driver.

Drives an underground or elevated train to transport passengers:

controls movement of train according to train orders, train schedules, signals by guard or conductor and block and semaphore signals along route.

9-83.60 Engine-Driver (Mine and Quarry).

Drives an electric, diesel or compressed-air driven locomotive to haul cars underground or on surface of mine or in quarry:

operates controls of locomotive to haul mine cars in mine or quarry according to driving orders and following signals of *Mine and quarry brakeman (9-84.50)*; inspects locomotive at beginning and end of each shift, lubricates it, makes minor adjustments and verifies supply of fuel oil, or compressed air, or charge in batteries.

May throw track switches, couple and uncouple engine and cars. May be designated according to type of engine driven.

9-83.90 Other Railway Engine-Drivers and Firemen.

This group includes railway engine-drivers and firemen not elsewhere classified, for example those who drive shunting engines.

9-84 Railway Brakemen, Signalmen and Shunters

Workers in this unit group take charge and safeguard railway freight trains during trips, control the movement of railway traffic by operating signals, switch rolling stock and assemble trains in railway yards, make up trains of cars for hauling in mines and control their movement.

Their functions include:

taking charge of and safeguarding freight train during trip;

controlling flow of railway traffic over section of line by operating signals and switches from control tower or signal box;

switching and coupling rolling stock in railway yards and sidings in accordance with orders about loading, unloading and make-up of trains;

making up trains of cars for hauling by locomotive or cable and directing their movement along haulageways in a mine or quarry.

Railway passenger train guard is classified in 3-60.20.

9-84.20 Railway Brakeman (Freight Train).

Takes charge of and safeguards freight train during trip:

assists in preparing train for run; checks signalling equipment such as flags, lamps and detonators; verifies that couplings and air hoses are securely fastened, axle-boxes lubricated and hand-brakes off before departure; signals engine driver to start or stop train; observes train during run to detect overheated axle-boxes, loose couplings and other defects; places warning signals in front of and at rear of train during emergency stops; supervises and assists attaching and detaching of freight cars at intermediate stops; submits report at termination of each run or shift.

May keep records of freight cars making up train, their destinations and other items.

9-84.30 Railway Signalman.

Controls flow of railway traffic over section of line by operating signals and switches from control tower or signal box:

reads switching orders and schedules of inbound and outbound traffic to ascertain time trains will enter or leave yard or line section, sequence of movement, and tracks on which trains are to be routed; moves switches on control panel to set traffic signals and to activate track switches that regulate traffic; receives and sends train orders by telephone or telegraph.

May control opening and closing of level-crossing barriers in addition to operating signals.

9-84.40 Railway Shunter.

Switches rolling-stock in railway yards and sidings in accordance with orders about loading, unloading and make-up of trains, and couples and uncouples rolling-stock:

throws track switches so that cars can be shunted to different locations in yard according to instructions; exchanges signals with brakeman and engine-driver and rides with driver if necessary; couples and uncouples rolling-stock; sets brakes by hand on rolling-stock not coupled to engine.

May ride on cars that have been shunted and turn handwheel to control speed of car or stop it at specified position.

9-84.50 Mine and Quarry Brakeman.

Makes up trains of cars for hauling by locomotive or cable and directs their movement along haulageways in mine or quarry:

couples railcars to form trains and attaches them to locomotives or hoisting cables; throws switches to direct cars onto selected tracks; directs movement of train by signalling *Engine-driver (mine and quarry) (9-83.60)* to start or stop.

May dump contents of cars into conveyor loading chute.

9-85 Motor-Vehicle Drivers

Workers in this unit group drive street railway cars and motor vehicles for the transport of passengers and freight by road.

Their functions include:

driving street railway cars;

driving motor cars or three-wheeled motorised vehicles to transport passengers on demand;

driving motor buses or motor coaches to transport local or long-distance passengers;

driving heavy motor trucks, light lorries or vans to transport freight locally or over long distances;

driving motor-cycles or motorised carrier-tricycles equipped to transport goods;

driving other motor vehicles such as hire cars, ambulances or new motor vehicles from assembly plant to delivery or shipping points.

9-85.20 Tram Driver.

Drives street railway car transporting passengers:

controls movement of tram car, in response to signals given by conductor with due regard to other traffic, traffic regulations and time schedules.

May, on one-man cars, collect fares, issue tickets, keep simple records, operate automatic doors and switch points, and adjust overhead trolley on power lines.

9-85.30 Taxi Driver.

Drives motor car or three-wheeled motorised vehicle to transport passengers on demand at a charge usually based on a fixed tariff:

drives passenger-carrying motor car or three-wheeled vehicle with due regard to other traffic and traffic regulations; assists passengers boarding or leaving vehicle and handles baggage; collects fare recorded on meter and supplementary charges in accordance with tariff, or other agreed charge.

May keep car clean and in good running order and make minor repairs.

Drivers of hire cars and drivers employed for an organisation's car pool are classified in 9-85.90.

9-85.40 Motor Bus Driver.

Drives motor bus, trolley-bus or motor coach to transport local or long-distance passengers:

drives bus over fixed or predetermined route, with due regard to other traffic, traffic regulations, signals from conductor and time schedules.

May operate automatic doors and, on a one-man bus, collect fares, issue tickets and keep simple records.

9-85.50 Lorry and Van Driver (Local Transport).

Drives a motor vehicle, such as heavy truck, light lorry or delivery van, to transport freight over short distances:

drives truck or similar vehicle between depot and loading and unloading points, with due regard to other traffic, traffic regulations and time schedules; keeps vehicle in good running order and makes minor repairs.

May assist with or perform loading and unloading tasks. May transport a particular type of article or merchandise and be designated accordingly.

Roundsmen making regular deliveries of bread, milk, ice or other goods to households are classified in 4-52.20.

9-85.60 Lorry and Van Driver (Long-Distance Transport).

Drives heavy motor vehicle, such as truck with or without trailer, to transport goods or liquids over long distances:

drives vehicle between depot and loading and unloading points, applying knowledge of long-distance commercial driving regulations and roads in area; keeps vehicle in good running order and makes minor repairs; complies with customs and other regulations and keeps simple records.

May assist with or perform loading and unloading tasks.

9-85.70 Motor-Cyclist.

Drives motor-cycle or motorised tricycle equipped to transport goods:

controls movement of vehicle with due regard to other traffic regulations; loads and unloads goods; makes minor repairs, cleans vehicle and keeps it in good running order.

May collect payment for goods delivered.

Drivers of three-wheeled motor vehicles which transport passengers are classified in 9-85.30.

9-85.90 Other Motor-Vehicle Drivers.

This group includes motor vehicle drivers not elsewhere classified, for example private chauffeurs, hire-car drivers, drivers of cars attached to a governmental or other organisation's car pool, drivers delivering new motor vehicles from factory to ports, sales depots or other places, drivers of ambulances, and motor-car driving instructors.

9-86 Animal and Animal-Drawn Vehicle Drivers

Workers in this unit group drive animal-drawn vehicles and animals transporting passengers and freight.

Their functions include:

driving animals pulling road vehicles to transport passengers or freight;

driving animals to haul vehicles underground or on surface of a mine or in a quarry;

driving working elephants;

driving a single animal, or pack-animal train, to transport passengers or freight.

9-86.20 Animal-Drawn Vehicle Driver (Road).

Drives one or more animals pulling road vehicles to transport passengers or freight:

harnesses animals and hitches them to vehicle; loads and unloads vehicle or assists passengers to board and leave vehicle; drives animals with due regard to other traffic and traffic regulations; keeps vehicle clean and in good working order.

May collect fares or charges. May tend working animals.

9-86.30 Animal-Drawn Vehicle Driver (Mine and Quarry).

Drives animals to haul wagons underground or on surface of a mine or in a quarry:

drives animals to haul wagons along tracks to and from loading point; directs animals by voice or reins.

May tend and harness animals. May assist in loading and unloading wagons.

9-86.90 Other Animal and Animal-Drawn Vehicle Drivers.

This group includes animal and animal-drawn vehicle drivers not elsewhere classified, for example those who drive working elephants, or drive one animal, or pack-animal train, to transport passengers or freight.

9-89 Transport Equipment Operators Not Elsewhere Classified

Workers in this unit group operate or tend various types of equipment used for or related to transport of goods or passengers and are not elsewhere classified.

Their functions include:

supervising and co-ordinating the activities of workers engaged in dry-docking vessels for cleaning, painting and repair;

opening and closing lock gates to permit the passage of water-borne traffic;

operating and maintaining warning light and signal apparatus of lighthouses and lightships;

driving pedal vehicles to transport goods or passengers;

pulling rickshaws and handcarts;

performing related tasks.

Material handling and related equipment operators are classified in minor group 9-7.

9-89.20 Dockmaster, Dry-Dock.

Supervises and co-ordinates activities of workers engaged in dry-docking vessels for cleaning, painting and repair:

analyses vessel's blueprints and specifications to determine size, shape and number of keel and bilge blocks required to support vessel; directs workers in assembling, positioning and securing blocks to floating dry-dock platform, marine railway or floor of graving dock; takes sights to establish reference points for positioning vessel over blocks, using transit, and directs workers in aligning vessel over blocks; directs workers in pumping operations and in positioning, flooding and pumping caisson (gate) in graving dock; supervises flooding operations and removal of vessel from dry-dock.

9-89.30 Lock Operator (Canal or Port).

Opens and closes lock gates to permit the passage of water-borne craft:

operates mechanical and electrical machinery to open and close locks in canals and ports; operates navigation lights and traffic signals; cleans, oils and makes minor repairs to equipment.

May keep records about number and types of craft passing, direction of travel, water levels, weather conditions and other data.

Opening-bridge operator is classified in 9-73.55.

9-89.40 Lighthouse Man.

Operates warning light and signal apparatus of lighthouse or lightship:

lights lamps at dusk and extinguishes them at dawn or operates apparatus automatically activating lamps at predetermined hours; cleans lighting mechanism and lenses; maintains equipment in operating condition and makes minor repairs.

May operate fog or other signals.

9-89.50 Pedal-Vehicle Driver.

Propels cycle equipped to transport passengers or goods:

assists passengers in getting on and off vehicle, or loads and unloads goods; propels and controls vehicle with due regard to other traffic and traffic regulations; makes minor repairs and keeps vehicle in good order.

May collect fares or charges.

9-89.90 Other Transport Equipment Operators.

This group includes transport equipment operators not elsewhere classified, for example those who attend to gates, sluices and pumping machinery connected with the dry-docking of vessels, pull rickshaws to transport passengers, or handcarts to transport goods by road, open and close gates at railway level-crossings.

9-9 LABOURERS NOT ELSEWHERE CLASSIFIED

Workers in this minor group perform manual tasks having a simple and routine nature and requiring mainly physical effort, which are not performed by workers classified elsewhere. They are classified in the unit group mentioned below:

9-99 Labourers Not Elsewhere Classified.

Workers performing simple manual tasks in farming and mining are classified in minor groups 6-2 and 7-1 respectively; caretakers and cleaners of residences and commercial and other establishments in minor group 5-5; hotel baggage porters in 5-99.90; *Dockers and freight handlers* in unit group 9-71.

9-99 Labourers Not Elsewhere Classified

Workers in this unit group perform manual tasks having a simple and routine nature, requiring mainly physical effort and little or no previous experience, which are not performed by workers classified elsewhere.

Their functions include:

performing simple manual tasks requiring mainly physical effort, such as digging and filling holes and trenches using pick and shovel;

cleaning used building bricks and doing other simple work on demolition sites;

cleaning up workplaces in factories;

carrying materials to and from work bench, using hand trolley where necessary, lifting by hand and stacking bricks, timber or other materials;

spreading gravel and other materials with a shovel to patch roads or maintain railway track ballast;

sweeping streets and clearing rubbish from parks and public gardens;

shovelling snow;

washing exteriors of railway carriages, motor vehicles, buses and trams;

carrying surveyor's instruments and clearing obstructions as directed;

carrying bricks and mortar to bricklayer on construction site;

collecting and removing garbage;

washing dishes and utensils in restaurant kitchen.

9-99.10 Labourer.

Performs lifting, carrying, stacking, shovelling, digging and similar tasks by hand, using simple labouring tools such as pick, shovel, wheelbarrow and street broom where necessary:

executes tasks of a simple and routine nature, requiring mainly physical effort, but not necessitating previous experience of the work or exercise of personal initiative or judgment; carries out tasks such as those described above under *Labourers Not Elsewhere Classified* (9-99).

Workers performing simple manual tasks in farming, mining and certain other activities are classified elsewhere (see note under minor group 9-9).

MAJOR GROUP **X**

WORKERS NOT CLASSIFIABLE BY OCCUPATION

Workers in this major group are new workers seeking employment, workers reporting occupations which cannot be identified, workers reporting occupations not sufficiently well described to permit classification in one of the preceding major groups and workers not reporting any occupation.

They are classified in the minor groups listed below:

X-1 New workers seeking employment.
X-2 Workers reporting occupations unidentifiable or inadequately described.
X-3 Workers not reporting any occupation.

Workers with work experience who are currently without a job and are seeking work may be classified in one of the preceding major groups according to their usual occupation.

X-1 NEW WORKERS SEEKING EMPLOYMENT

Workers classified in this minor group are young persons and other new workers entering the labour force who have no employment, are seeking work and either have had no previous work experience or have had only incidental work experience such as temporary or casual work during school holidays or in a family enterprise. They are classified in the unit group mentioned below:

X-10 New Workers Seeking Employment.

X-10 New Workers Seeking Employment

Workers classified in this unit group are young persons and other new workers entering the labour force who have no employment, are seeking work and either have had no previous work experience or have had only incidental work experience such as temporary or casual work during school vacations or helping in a family enterprise.

X-10.10 New Workers Seeking Employment.

This group includes those young persons and other new workers entering the labour force who have no employment, are seeking work and either have had no previous work experience or have had only incidental work experience such as temporary or casual work during school vacations or in a family enterprise.

X-2 WORKERS REPORTING OCCUPATIONS UNIDENTIFIABLE OR INADEQUATELY DESCRIBED

Workers classified in this minor group include workers reporting occupations which cannot be identified, workers reporting occupations not sufficiently well described to permit classification in one of the preceding major groups and workers reporting occupations not classifiable elsewhere because of erroneous reporting or for other reasons. They are classified in the unit group mentioned below:

X-20 Workers Reporting Occupations Unidentifiable or Inadequately Described.

X-20 Workers Reporting Occupations Unidentifiable or Inadequately Described

Workers classified in this unit group are those reporting occupations which cannot be identified, those reporting occupations not sufficiently well described to permit classification in one of the preceding major groups and those reporting occupations not classifiable elsewhere because of erroneous reporting or for other reasons.

X-20.10 Workers Reporting Occupations Unidentifiable or Inadequately Described.

This group includes persons reporting occupations which cannot be identified, occupations not sufficiently well described to permit classification in one of the preceding major groups and occupations not classifiable elsewhere because of erroneous reporting or for other reasons.

X-3 WORKERS NOT REPORTING ANY OCCUPATION

Workers classified in this minor group are those not reporting any information as to their occupation. They are classified in the unit group mentioned below:

X-30 Workers Not Reporting Any Occupation.

X-30 Workers Not Reporting Any Occupation

Workers classified in this unit group are those not reporting any information as to their occupation.

X-30.10 Workers Not Reporting Any Occupation.

This group includes those not reporting any information as to their occupation.

ARMED FORCES

MEMBERS OF THE ARMED FORCES

Members of the armed forces are those personnel who are serving in the armed forces, including women's auxiliary services, whether on a voluntary or involuntary basis, and who are not free to accept civilian employment. Included are regular members of the army, navy, air force and other military services, as well as temporary members enrolled for full-time training or other service for a period of three months or more. Excluded are persons in civilian employment, such as administrative staff of government establishments concerned with defence questions; police (other than military police); customs inspectors and members of other armed civilian services; members of military reserves not currently on full-time active service; and persons who have been temporarily withdrawn from civilian life for a short period of military training.

CLASSIFIED LIST OF ISCO TITLES AND CODES

MAJOR GROUP 0/1

PROFESSIONAL, TECHNICAL AND RELATED WORKERS

0-1 Physical Scientists and Related Technicians

0-11 Chemists

0-11.10	Chemist, general
0-11.20	Organic chemist
0-11.30	Inorganic chemist
0-11.40	Physical chemist
0-11.50	Analytical chemist
0-11.90	Other chemists

0-12 Physicists

0-12.10	Physicist (general)
0-12.20	Mechanics physicist
0-12.30	Heat physicist
0-12.40	Light physicist
0-12.50	Sound physicist
0-12.60	Electricity and magnetism physicist
0-12.70	Electronics physicist
0-12.80	Nuclear physicist
0-12.90	Other physicists

0-13 Physical Scientists Not Elsewhere Classified

0-13.20	Geophysical scientist
0-13.30	Geological scientist
0-13.40	Meteorological scientist
0-13.50	Astronomical scientist
0-13.90	Other physical scientists

0-14 Physical Science Technicians

0-14.20	Chemistry technician
0-14.30	Physics technician
0-14.90	Other physical science technicians

0-2/0-3 Architects, Engineers and Related Technicians

0-21 Architects and Town Planners

0-21.20	Building architect
0-21.30	Town planner
0-21.40	Landscape architect

0-22 Civil Engineers

0-22.10	Civil engineer (general)
0-22.20	Building construction engineer
0-22.30	Highway and street construction engineer
0-22.35	Aerodrome construction engineer
0-22.40	Railway construction engineer
0-22.45	Bridge construction engineer
0-22.50	Sanitary engineer
0-22.55	Hydraulics engineer
0-22.60	Soil mechanics engineer
0-22.90	Other civil engineers

0-23 Electrical and Electronics Engineers

0-23.05	Electrical engineer (general)
0-23.10	Electronics engineer (general)
0-23.20	Power generation engineer
0-23.30	Power distribution and transmission engineer
0-23.40	Telecommunications engineer
0-23.90	Other electrical and electronics engineers

0-24 Mechanical Engineers

0-24.10	Mechanical engineer (general)
0-24.20	Industrial machinery and tools engineer
0-24.30	Mechanical engineer (motors and engines, except marine)
0-24.40	Marine engineer
0-24.50	Ship construction engineer
0-24.60	Aeronautical engineer
0-24.70	Automotive engineer
0-24.80	Heating, ventilation and refrigeration engineer
0-24.85	Nuclear power engineer
0-24.90	Other mechanical engineers

0-25 Chemical Engineers

0-25.10	Chemical engineer (general)
0-25.20	Chemical engineer (petroleum)
0-25.90	Other chemical engineers

0-26 Metallurgists

0-26.20	Extractive metallurgist
0-26.30	Physical metallurgist
0-26.90	Other metallurgists

0-27 Mining Engineers

0-27.10	Mining engineer (general)
0-27.20	Coal-mining engineer
0-27.30	Metal-mining engineer
0-27.40	Petroleum and natural gas engineer
0-27.90	Other mining engineers

0-28 Industrial Engineers

0-28.10	Industrial efficiency engineer (general)
0-28.20	Methods engineer
0-28.30	Time and motion study engineer
0-28.90	Other industrial engineers

0-29 *Engineers Not Elsewhere Classified*

0-29.20 Ceramics and glass technologist
0-29.30 Agricultural engineer
0-29.40 Food and drink technologist
0-29.50 Traffic planner
0-29.90 Other engineers

0-31 *Surveyors*

0-31.10 Surveyor, general
0-31.20 Land surveyor
0-31.30 Mine surveyor
0-31.40 Hydrographic surveyor
0-31.50 Photogrammetrist
0-31.90 Other surveyors

0-32 *Draughtsmen*

0-32.10 Draughtsman, general
0-32.20 Mechanical draughtsman
0-32.30 Electrical draughtsman
0-32.40 Civil engineering draughtsman
0-32.50 Architectural draughtsman
0-32.60 Cartographical draughtsman
0-32.70 Technical illustrator
0-32.80 Lithographic artist
0-32.90 Other draughtsmen

0-33 *Civil Engineering Technicians*

0-33.10 Civil engineering technician (general)
0-33.20 Quantity surveyor
0-33.30 Surveyor's technician
0-33.40 Clerk of works
0-33.90 Other civil engineering technicians

0-34 *Electrical and Electronics Engineering Technicians*

0-34.05 Electrical engineering technician (general)
0-34.10 Electronics engineering technician (general)
0-34.20 Electrical engineering technician (high voltage)
0-34.30 Telecommunications technician
0-34.90 Other electrical and electronics engineering technicians

0-35 *Mechanical Engineering Technicians*

0-35.10 Mechanical engineering technician (general)
0-35.20 Mechanical engineering technician (motors and engines)
0-35.30 Aeronautical engineering technician
0-35.40 Automotive engineering technician
0-35.50 Heating, ventilation and refrigeration engineering technician
0-35.90 Other mechanical engineering technicians

0-36 *Chemical Engineering Technicians*

0-36.10 Chemical engineering technician (general)
0-36.20 Chemical engineering technician (petroleum)
0-36.90 Other chemical engineering technicians

0-37 *Metallurgical Technicians*

0-37.20 Extractive metallurgy technician
0-37.30 Physical metallurgy technician
0-37.90 Other metallurgical technicians

0-38 *Mining Technicians*

0-38.10 Mining technician (general)
0-38.20 Petroleum and natural gas extraction technician
0-38.90 Other mining technicians

0-39 *Engineering Technicians Not Elsewhere Classified*

0-39.20 Production engineering technician
0-39.30 Time and motion study technician
0-39.90 Other engineering technicians

0-4 Aircraft and Ships' Officers

0-41 *Aircraft Pilots, Navigators and Flight Engineers*

0-41.20 Air transport pilot
0-41.30 Aircraft pilot (except transport)
0-41.40 Flight navigator
0-41.50 Flight engineer
0-41.60 Flying instructor

0-42 *Ships' Deck Officers and Pilots*

0-42.15 Ship's master (sea)
0-42.20 Ship's master (inland waterways)
0-42.30 Ship's navigating officer
0-42.40 Ship pilot
0-42.50 Marine superintendent (deck)
0-42.90 Other ship's deck officers and pilots

0-43 *Ships' Engineers*

0-43.15 Ship's chief engineer
0-43.20 Marine engineer officer
0-43.30 Marine superintendent (technical)

0-5 Life Scientists and Related Technicians

0-51 *Biologists, Zoologists and Related Scientists*

0-51.10 Biologist (general)
0-51.20 Botanist
0-51.30 Zoologist
0-51.90 Other biologists, zoologists and related scientists

0-52 *Bacteriologists, Pharmacologists and Related Scientists*

0-52.20 Anatomist
0-52.30 Biochemist
0-52.40 Physiologist
0-52.50 Bacteriologist
0-52.60 Medical pathologist
0-52.65 Veterinary pathologist
0-52.70 Pharmacologist
0-52.80 Animal scientist
0-52.90 Other bacteriologists, pharmacologists and related scientists

0-53 *Agronomists and Related Scientists*

0-53.20 Agronomist
0-53.30 Horticulturist
0-53.40 Silviculturist
0-53.50 Soil scientist
0-53.60 Farming adviser
0-53.90 Other agronomists and related scientists

0-54 *Life Sciences Technicians*

0-54.20 Biological technician
0-54.30 Medical science technician
0-54.90 Other life sciences technicians

0-6/0-7 Medical, Dental, Veterinary and Related Workers

0-61 Medical Doctors

0-61.05 General physician
0-61.10 General surgeon
0-61.20 Specialised physician
0-61.30 Specialised surgeon
0-61.40 Public health physician
0-61.90 Other medical doctors

0-62 Medical Assistants

0-62.10 Medical assistant

0-63 Dentists

0-63.10 Dentist, general
0-63.20 Specialised dentist
0-63.30 Public health dentist

0-64 Dental Assistants

0-64.20 Dental assistant
0-64.30 School dental assistant
0-64.40 Dental hygienist

0-65 Veterinarians

0-65.10 Veterinarian (general)
0-65.20 Public health veterinarian
0-65.90 Other veterinarians

0-66 Veterinary Assistants

0-66.10 Veterinary assistant

0-67 Pharmacists

0-67.10 Pharmacist

0-68 Pharmaceutical Assistants

0-68.10 Pharmaceutical assistant

0-69 Dietitians and Public Health Nutritionists

0-69.10 Dietitian (general)
0-69.20 Public health nutritionist
0-69.90 Other dietitians and public health nutritionists

0-71 Professional Nurses

0-71.10 Professional nurse (general)
0-71.20 Specialised nurse
0-71.30 Public health nurse
0-71.40 Occupational health nurse
0-71.90 Other professional nurses

0-72 Nursing Personnel Not Elsewhere Classified

0-72.10 Auxiliary nurse

0-73 Professional Midwives

0-73.10 Professional midwife

0-74 Midwifery Personnel Not Elsewhere Classified

0-74.10 Auxiliary midwife

0-75 Optometrists and Opticians

0-75.20 Optometrist
0-75.30 Dispensing optician

0-76 Physiotherapists and Occupational Therapists

0-76.20 Physiotherapist
0-76.30 Occupational therapist
0-76.40 Masseur

0-77 Medical X-Ray Technicians

0-77.10 Medical X-ray technician

0-79 Medical, Dental, Veterinary and Related Workers Not Elsewhere Classified

0-79.20 Osteopath
0-79.30 Chiropractor
0-79.40 Sanitarian
0-79.50 Orthopaedic technician
0-79.90 Other medical, dental, veterinary and related workers

0-8 Statisticians, Mathematicians, Systems Analysts and Related Technicians

0-81 Statisticians

0-81.10 Statistican, general
0-81.20 Mathematical statistician
0-81.30 Statistician (applied statistics)

0-82 Mathematicians and Actuaries

0-82.20 Mathematician (pure mathematics)
0-82.30 Mathematician (applied mathematics)
0-82.40 Operations research analyst
0-82.50 Actuary

0-83 Systems Analysts

0-83.10 Systems analyst

0-84 Statistical and Mathematical Technicians

0-84.20 Computer programmer
0-84.90 Other statistical and mathematical technicians

0-9 Economists

0-90 Economists

0-90.10 Economist (general)
0-90.20 Economist (specialised)
0-90.30 Market research analyst

1-1 Accountants

1-10 Accountants

1-10.10 Accountant (general)
1-10.20 Auditor
1-10.90 Other accountants

1-2 Jurists

1-21 Lawyers

1-21.10 Lawyer

1-22 Judges

1-22.10 Judge

1-29 Jurists Not Elsewhere Classified

1-29.10 Jurist (except lawyer or judge)

1-3 Teachers

1-31 University and Higher Education Teachers

1-31.20 Teacher in physical sciences (third level)
1-31.25 Teacher in engineering and architecture (third level)
1-31.30 Teacher in life and medical sciences (third level)
1-31.40 Teacher in mathematics (third level)
1-31.45 Teacher in economics and commerce (third level)

1-31.50 Teacher in law (third level)
1-31.55 Teacher in education (third level)
1-31.60 Teacher in agricultural science (third level)
1-31.65 Teacher in history, philosophy, sociology and related social sciences (third level)
1-31.70 Teacher in languages and literature (third level)
1-31.75 Teacher in medical therapy, advanced nursing and related arts
1-31.80 Teacher in industrial arts (third level)
1-31.90 Other university and higher education teachers

1-32 Secondary Education Teachers

1-32.15 Languages and literature teacher (second level)
1-32.20 Mathematics teacher (second level)
1-32.30 Natural science teacher (second level)
1-32.40 Social studies teacher (second level)
1-32.50 Fine arts teacher (second level)
1-32.60 Commercial and secretarial teacher (second level)
1-32.70 Agricultural science teacher (second level)
1-32.75 Domestic science and general nursing teacher (second level)
1-32.80 Technical education teacher (second level)
1-32.90 Other secondary education teachers

1-33 Primary Education Teachers

1-33.20 First-level education teacher
1-33.90 Other primary education teachers

1-34 Pre-Primary Education Teachers

1-34.20 Kindergarten teacher
1-34.90 Other pre-primary education teachers

1-35 Special Education Teachers

1-35.20 Teacher of the blind
1-35.30 Teacher of the deaf
1-35.40 Teacher of the mentally handicapped
1-35.90 Other special education teachers

1-39 Teachers Not Elsewhere Classified

1-39.20 Education methods adviser
1-39.30 Audio-visual and other teaching aid specialist
1-39.40 Head teacher
1-39.50 School inspector
1-39.90 Other teachers

1-4 Workers in Religion

1-41 Ministers of Religion and Related Members of Religious Orders

1-41.20 Minister of religion
1-41.30 Missionary
1-41.40 Religious worker (member of religious order)
1-41.90 Other ministers of religion and related members of religious orders

1-49 Workers in Religion Not Elsewhere Classified

1-49.20 Faith healer
1-49.90 Other workers in religion

1-5 Authors, Journalists and Related Writers

1-51 Authors and Critics

1-51.20 Author
1-51.30 Critic

1-59 Authors, Journalists and Related Writers Not Elsewhere Classified

1-59.15 Journalist
1-59.20 Editor, newspapers and periodicals
1-59.25 Sub-editor, newspapers and periodicals
1-59.30 Reporter
1-59.35 Radio and television journalist
1-59.40 Continuity and script editor
1-59.45 Book editor
1-59.50 Advertising copywriter
1-59.55 Public relations officer
1-59.60 Publicity writer
1-59.65 Technical writer
1-59.90 Other authors, journalists and related writers

1-6 Sculptors, Painters, Photographers and Related Creative Artists

1-61 Sculptors, Painters and Related Artists

1-61.20 Sculptor
1-61.30 Painter, artist
1-61.40 Cartoonist
1-61.50 Engraver and etcher (artistic)
1-61.60 Painting restorer
1-61.90 Other sculptors, painters and related artists

1-62 Commercial Artists and Designers

1-62.20 Commercial artist
1-62.30 Interior decoration designer
1-62.40 Industrial and commercial products designer
1-62.50 Display artist
1-62.90 Other commercial artists and designers

1-63 Photographers and Cameramen

1-63.10 Photographer, general
1-63.20 Portrait photographer
1-63.30 Photographer, commercial illustrator
1-63.40 News photographer
1-63.50 Director of photography (motion picture)
1-63.60 Motion picture camera operator
1-63.70 Television camera operator
1-63.90 Other photographers and cameramen

1-7 Composers and Performing Artists

1-71 Composers, Musicians and Singers

1-71.20 Composer
1-71.30 Orchestrator
1-71.35 Orchestra and band conductor
1-71.40 Instrumentalist
1-71.45 Singer
1-71.50 Vocal group conductor
1-71.90 Other composers, musicians and singers

1-72 Choreographers and Dancers

1-72.20 Choreographer
1-72.30 Dancer

1-73 *Actors and Stage Directors*
- 1-73.20 Actor
- 1-73.30 Stage director
- 1-73.40 Motion picture, radio and television director
- 1-73.50 Story-teller
- 1-73.90 Other actors and stage directors

1-74 *Producers, Performing Arts*
- 1-74.20 Theatrical producer
- 1-74.30 Motion picture producer
- 1-74.40 Radio and television producer
- 1-74.90 Other producers, performing arts

1-75 *Circus Performers*
- 1-75.20 Clown
- 1-75.30 Magician
- 1-75.40 Acrobat
- 1-75.50 Aerialist
- 1-75.90 Other circus performers

1-79 *Performing Artists Not Elsewhere Classified*
- 1-79.20 Radio and television announcer
- 1-79.30 Compère
- 1-79.90 Other performing artists

1-8 Athletes, Sportsmen and Related Workers

1-80 *Athletes, Sportsmen and Related Workers*
- 1-80.20 Professional sportsman
- 1-80.30 Sports coach
- 1-80.40 Sports official
- 1-80.50 Physical trainer
- 1-80.90 Other athletes, sportsmen and related workers

1-9 Professional, Technical and Related Workers Not Elsewhere Classified

1-91 *Librarians, Archivists and Curators*
- 1-91.20 Librarian
- 1-91.30 Archivist
- 1-91.40 Art gallery and museum curator
- 1-91.90 Other librarians, archivists and curators

1-92 *Sociologists, Anthropologists and Related Scientists*
- 1-92.20 Sociologist
- 1-92.30 Psychologist
- 1-92.40 Anthropologist
- 1-92.50 Geographer
- 1-92.60 Historian
- 1-92.70 Political scientist
- 1-92.90 Other sociologists, anthropologists and related scientists

1-93 *Social Workers*
- 1-93.10 Social worker, general
- 1-93.20 Social welfare worker
- 1-93.30 Culture centre worker
- 1-93.40 Social worker, delinquency
- 1-93.50 Psychiatric social worker
- 1-93.90 Other social workers

1-94 *Personnel and Occupational Specialists*
- 1-94.20 Personnel specialist
- 1-94.30 Vocational guidance counsellor
- 1-94.40 Occupational analyst
- 1-94.90 Other personnel and occupational specialists

1-95 *Philologists, Translators and Interpreters*
- 1-95.20 Philologist
- 1-95.30 Translator
- 1-95.40 Interpreter

1-99 *Other Professional, Technical and Related Workers*
- 1-99.20 Patent agent
- 1-99.30 Home economist
- 1-99.40 Advertising account executive
- 1-99.50 Underwriter
- 1-99.60 Astrologer and fortune teller
- 1-99.90 Other professional, technical and related workers not elsewhere classified

MAJOR GROUP 2

ADMINISTRATIVE AND MANAGERIAL WORKERS

2-0 Legislative Officials and Government Administrators

2-01 *Legislative Officials*
- 2-01.10 Legislative official

2-02 *Government Administrators*
- 2-02.10 Government administrator

2-1 Managers

2-11 *General Managers*
- 2-11.10 General manager

2-12 *Production Managers (except Farm)*
- 2-12.10 Production manager (except farm)

2-19 *Managers Not Elsewhere Classified*
- 2-19.20 Research and development manager
- 2-19.30 Sales manager (except wholesale and retail trade)
- 2-19.40 Administration manager
- 2-19.50 Budgeting and accounting manager
- 2-19.60 Transport operations manager
- 2-19.70 Operations manager (postal or telecommunications services)
- 2-19.80 Industrial relations and personnel manager
- 2-19.90 Other managers

MAJOR GROUP 3

CLERICAL AND RELATED WORKERS

3-0 Clerical Supervisors

3-00 Clerical Supervisors

3-00.10 Clerical supervisor (general)
3-00.90 Other clerical supervisors

3-1 Government Executive Officials

3-10 Government Executive Officials

3-10.10 Government executive official

3-2 Stenographers, Typists and Card- and Tape-Punching Machine Operators

3-21 Stenographers, Typists and Teletypists

3-21.10 Stenographer-typist (general)
3-21.20 Stenographic secretary
3-21.30 Verbatim reporter
3-21.40 Typist
3-21.50 Teletypist
3-21.90 Other stenographers, typists and teletypists

3-22 Card- and Tape-Punching Machine Operators

3-22.20 Card- and tape-punching machine operator
3-22.90 Other card- and tape-punching operators

3-3 Bookkeepers, Cashiers and Related Workers

3-31 Bookkeepers and Cashiers

3-31.10 Bookkeeper (general)
3-31.20 Bookkeeping clerk
3-31.30 Office cashier
3-31.40 Bank teller
3-31.50 Money changer
3-31.60 Cash desk cashier
3-31.70 Post office counter clerk
3-31.90 Other bookkeepers and cashiers

3-39 Bookkeepers, Cashiers and Related Workers Not Elsewhere Classified

3-39.20 Cost computing clerk
3-39.30 Wages clerk
3-39.40 Finance clerk
3-39.90 Other bookkeepers, cashiers and related workers

3-4 Computing Machine Operators

3-41 Bookkeeping and Calculating Machine Operators

3-41.20 Bookkeeping machine operator
3-41.30 Calculating machine operator

3-42 Automatic Data-Processing Machine Operators

3-42.20 Electronic computer operator
3-42.30 Punched-card machine operator
3-42.90 Other automatic data-processing machine operators

3-5 Transport and Communications Supervisors

3-51 Railway Station Masters

3-51.10 Railway station master

3-52 Postmasters

3-52.10 Postmaster

3-59 Transport and Communications Supervisors Not Elsewhere Classified

3-59.20 Railway service supervisor
3-59.25 Train dispatcher
3-59.30 Railway transport service inspector
3-59.35 Railway goods agent
3-59.40 Road transport service supervisor
3-59.45 Road passenger transport service inspector
3-59.50 Air transport service supervisor
3-59.60 Air traffic controller
3-59.70 Flight operations officer
3-59.75 Telecommunications service supervisor
3-59.80 Postal services supervisor
3-59.90 Other transport and communications supervisors

3-6 Transport Conductors

3-60 Transport Conductors

3-60.20 Railway passenger train guard
3-60.30 Sleeping- or pullman-car attendant
3-60.40 Bus conductor
3-60.90 Other transport conductors

3-7 Mail Distribution Clerks

3-70 Mail Distribution Clerks

3-70.20 Mail sorting clerk
3-70.30 Postman
3-70.40 Messenger
3-70.90 Other mail distribution clerks

3-8 Telephone and Telegraph Operators

3-80 Telephone and Telegraph Operators

3-80.20 Telephone switchboard operator
3-80.30 Radio-telephone operator (land-based)
3-80.40 Telegrapher
3-80.50 Ship's radio officer
3-80.60 Flight radio operator
3-80.90 Other telephone and telegraph operators

3-9 Clerical and Related Workers Not Elsewhere Classified

3-91 Stock Clerks

3-91.20 Dispatching and receiving clerk
3-91.30 Stock records clerk
3-91.40 Storeroom clerk
3-91.50 Weighing clerk
3-91.90 Other stock clerks

3-92 *Material and Production Planning Clerks*

3-92.20 Material planning clerk
3-92.30 Production planning clerk

3-93 *Correspondence and Reporting Clerks*

3-93.10 Office clerk (general)
3-93.20 Correspondence clerk
3-93.30 Personnel clerk
3-93.40 Legal clerk
3-93.50 Insurance clerk
3-93.90 Other correspondence and reporting clerks

3-94 *Receptionists and Travel Agency Clerks*

3-94.10 Receptionist (general)
3-94.20 Hotel receptionist
3-94.30 Doctor's or dentist's receptionist
3-94.40 Travel agency clerk
3-94.90 Other receptionists and travel agency clerks

3-95 *Library and Filing Clerks*

3-95.20 Library clerk
3-95.30 Filing clerk

3-99 *Clerks Not Elsewhere Classified*

3-99.20 Statistical clerk
3-99.30 Coding clerk (data-processing)
3-99.40 Proof reader
3-99.50 Office machine operator (reproduction processes)
3-99.90 Other clerks

MAJOR GROUP 4

SALES WORKERS

4-0 Managers (Wholesale and Retail Trade)

4-00 *Managers (Wholesale and Retail Trade)*

4-00.20 Manager, wholesale trade
4-00.30 Manager, retail trade

4-1 Working Proprietors (Wholesale and Retail Trade)

4-10 *Working Proprietors (Wholesale and Retail Trade)*

4-10.20 Working proprietor (wholesale trade)
4-10.30 Working proprietor (retail trade)

4-2 Sales Supervisors and Buyers

4-21 *Sales Supervisors*

4-21.20 Sales supervisor (wholesale trade)
4-21.30 Sales supervisor (retail trade)
4-21.90 Other sales supervisors

4-22 *Buyers*

4-22.20 Buyer
4-22.30 Purchasing agent

4-3 Technical Salesmen, Commercial Travellers and Manufacturers' Agents

4-31 *Technical Salesmen and Service Advisers*

4-31.20 Technical salesman
4-31.30 Technical service adviser

4-32 *Commercial Travellers and Manufacturers' Agents*

4-32.20 Commercial traveller
4-32.30 Manufacturers' agent

4-4 Insurance, Real Estate, Securities and Business Services Salesmen and Auctioneers

4-41 *Insurance, Real Estate and Securities Salesmen*

4-41.20 Insurance salesman
4-41.30 Real estate salesman
4-41.40 Securities salesman
4-41.90 Other insurance, real estate and securities salesmen

4-42 *Business Services Salesmen*

4-42.20 Business services salesman (except advertising)
4-42.30 Advertising salesman

4-43 *Auctioneers*

4-43.20 Auctioneer
4-43.30 Appraiser

4-5 Salesmen, Shop Assistants and Related Workers

4-51 *Salesmen, Shop Assistants and Demonstrators*

4-51.20 Wholesale trade salesman
4-51.30 Retail trade salesman
4-51.40 Fashion model
4-51.50 Demonstrator
4-51.90 Other salesmen, shop assistants and demonstrators

4-52 *Street Vendors, Canvassers and Newsvendors*

4-52.20 Street vendor
4-52.30 Canvasser
4-52.40 Newsvendor
4-52.90 Other street vendors, canvassers and newsvendors

4-9 Sales Workers Not Elsewhere Classified

4-90 *Sales Workers Not Elsewhere Classified*

4-90.20 Pawnbroker
4-90.90 Other sales workers

MAJOR GROUP 5

SERVICE WORKERS

5-0 Managers (Catering and Lodging Services)

5-00 Managers (Catering and Lodging Services)

5-00.20 Hotel and restaurant manager
5-00.30 Restaurant manager
5-00.40 Ship's purser
5-00.90 Other managers (catering and lodging services)

5-1 Working Proprietors (Catering and Lodging Services)

5-10 Working Proprietors (Catering and Lodging Services)

5-10.20 Working proprietor (hotel and restaurant)
5-10.30 Working proprietor (restaurant)
5-10.40 Working proprietor (guest house)
5-10.50 Working proprietor (café, bar and snack bar)
5-10.90 Other working proprietors (catering and lodging services)

5-2 Housekeeping and Related Service Supervisors

5-20 Housekeeping and Related Service Supervisors

5-20.20 Housekeeper (except private service)
5-20.30 Housekeeper (private service)
5-20.40 House steward
5-20.50 Chief steward (ship)
5-20.60 Housekeeping matron
5-20.90 Other housekeeping and related service supervisors

5-3 Cooks, Waiters, Bartenders and Related Workers

5-31 Cooks

5-31.20 Head cook
5-31.30 Cook, except private service
5-31.40 Cook, private service
5-31.50 Ship's cook
5-31.90 Other cooks

5-32 Waiters, Bartenders and Related Workers

5-32.10 Waiter, general
5-32.20 Head waiter
5-32.30 Waiter, formal service
5-32.40 Wine waiter
5-32.50 Bartender
5-32.90 Other waiters, bartenders and related workers

5-4 Maids and Related Housekeeping Service Workers Not Elsewhere Classified

5-40 Maids and Related Housekeeping Service Workers Not Elsewhere Classified

5-40.20 Housemaid
5-40.30 Personal maid; valet
5-40.35 Nursemaid
5-40.40 Companion
5-40.50 Chambermaid
5-40.55 Hotel concierge
5-40.60 Ship's steward
5-40.70 Wardrobe mistress (stage and studio)
5-40.90 Other maids and related housekeeping service workers

5-5 Building Caretakers, Charworkers, Cleaners and Related Workers

5-51 Building Caretakers

5-51.20 Concierge (apartment house)
5-51.30 Janitor
5-51.40 Verger
5-51.90 Other building caretakers

5-52 Charworkers, Cleaners and Related Workers

5-52.20 Charworker
5-52.30 Window cleaner
5-52.40 Chimney sweep
5-52.90 Other charworkers, cleaners and related workers

5-6 Launderers, Dry-Cleaners and Pressers

5-60 Launderers, Dry-Cleaners and Pressers

5-60.10 Launderer (general)
5-60.20 Laundering-machine operator
5-60.30 Dry-cleaning machine operator
5-60.40 Dry-cleaner (hand)
5-60.50 Spotter (dry-cleaner)
5-60.60 Laundry pressing-machine operator
5-60.70 Presser (hand)
5-60.90 Other launderers, dry-cleaners and pressers

5-7 Hairdressers, Barbers, Beauticians and Related Workers

5-70 Hairdressers, Barbers, Beauticians and Related Workers

5-70.20 Women's hairdresser
5-70.30 Barber-hairdresser
5-70.40 Beautician
5-70.50 Manicurist
5-70.60 Make-up man (stage and studio)
5-70.70 Bath attendant
5-70.90 Other barbers, hairdressers, beauticians and related workers

5-8 Protective Service Workers

5-81 Fire-Fighters

5-81.10 Fire-fighter (general)
5-81.20 Fire-prevention specialist
5-81.30 Fire-salvage specialist
5-81.40 Aircraft accident fire-fighter
5-81.90 Other fire-fighters

5-82 *Policemen and Detectives*
5-82.20 Policeman
5-82.30 Detective
5-82.40 Private police guard

5-89 *Protective Service Workers Not Elsewhere Classified*
5-89.20 Private inquiry agent
5-89.30 Prison guard
5-89.40 Watchman
5-89.90 Other protective service workers

5-9 Service Workers Not Elsewhere Classified

5-91 *Guides*
5-91.20 Travel guide
5-91.30 Sightseeing guide
5-91.90 Other guides

5-92 *Undertakers and Embalmers*
5-92.20 Undertaker
5-92.30 Embalmer
5-92.90 Other undertakers and embalmers

5-99 *Other Service Workers*
5-99.20 Bookmaker (sport)
5-99.30 Croupier
5-99.40 Nursing aid
5-99.50 Practical aid (pharmacy)
5-99.60 Practical aid (veterinary)
5-99.70 Aircraft cabin attendant
5-99.90 Other service workers not elsewhere classified

MAJOR GROUP 6

AGRICULTURAL ANIMAL HUSBANDRY AND FORESTRY WORKERS, FISHERMEN AND HUNTERS

6-0 Farm Managers and Supervisors

6-00 *Farm Managers and Supervisors*
6-00.20 Farm manager
6-00.30 Farm supervisor

6-1 Farmers

6-11 *General Farmers*
6-11.10 General farmer

6-12 *Specialised Farmers*
6-12.20 Field crop farmer
6-12.30 Orchard, vineyard and related tree and shrub crop farmer
6-12.40 Livestock farmer
6-12.50 Dairy farmer
6-12.60 Poultry farmer
6-12.70 Horticultural farmer
6-12.90 Other specialised farmers

6-2 Agricultural and Animal Husbandry Workers

6-21 *General Farm Workers*
6-21.05 Farm worker (general)
6-21.10 Farm helper (general)

6-22 *Field Crop and Vegetable Farm Workers*
6-22.10 Field crop farm worker (general)
6-22.20 Vegetable farm worker
6-22.30 Wheat farm worker
6-22.40 Cotton farm worker
6-22.50 Rice farm worker
6-22.60 Sugar-cane farm worker
6-22.90 Other field crop and vegetable farm workers

6-23 *Orchard, Vineyard and Related Tree and Shrub Crop Workers*
6-23.20 Orchard worker
6-23.30 Vineyard worker
6-23.40 Tea plantation worker
6-23.50 Rubber plantation worker
6-23.90 Other orchard, vineyard and related tree and shrub crop workers

6-24 *Livestock Workers*
6-24.10 Livestock worker (general)
6-24.20 Beef cattle farm worker
6-24.30 Sheep farm worker
6-24.40 Pig farm worker
6-24.50 Fur-bearing animal farm worker
6-24.90 Other livestock workers

6-25 *Dairy Farm Workers*
6-25.10 Dairy farm worker (general)
6-25.20 Milker (machine)
6-25.90 Other dairy farm workers

6-26 *Poultry Farm Workers*
6-26.10 Poultry farm worker (general)
6-26.20 Poultry hatchery worker
6-26.90 Other poultry farm workers

6-27 *Nursery Workers and Gardeners*
6-27.20 Market garden worker
6-27.30 Nursery worker
6-27.40 Gardener
6-27.90 Other nursery workers and gardeners

6-28 *Farm Machinery Operators*
6-28.20 Motorised farm equipment operator
6-28.90 Other farm machinery operators

6-29 *Agricultural and Animal Husbandry Workers Not Elsewhere Classified*
6-29.20 Apiary worker
6-29.30 Sericulture worker
6-29.40 Tree tapper (except rubber)
6-29.50 Irrigator
6-29.60 Groundsman
6-29.90 Other agricultural and animal husbandry workers

6-3 Forestry Workers

6-31 Loggers

6-31.10 Logger (general)
6-31.20 Tree feller and bucker
6-31.30 High climber (logging)
6-31.40 River driver
6-31.90 Other loggers

6-32 Forestry Workers (except Logging)

6-32.20 Forest supervisor
6-32.30 Forestry worker
6-32.40 Timber cruiser
6-32.50 Forest fire-fighter
6-32.90 Other forestry workers

6-4 Fishermen, Hunters and Related Workers

6-41 Fishermen

6-41.20 Deep-sea fisherman
6-41.30 Inland and coastal waters fisherman

6-49 Fishermen, Hunters and Related Workers Not Elsewhere Classified

6-49.20 Fish farm worker
6-49.30 Oyster farm worker
6-49.40 Whale hunter
6-49.50 Seal hunter
6-49.60 Trapper and hunter
6-49.90 Other fishermen, hunters and related workers

MAJOR GROUP 7/8/9

PRODUCTION AND RELATED WORKERS, TRANSPORT EQUIPMENT OPERATORS AND LABOURERS

7-0 Production Supervisors and General Foremen

7-00 Production Supervisors and General Foremen

7-00.10 Production supervisor and general foreman (general)
7-00.20 Supervisor and general foreman, mining, quarrying and well drilling
7-00.30 Supervisor and general foreman, metal processing
7-00.40 Supervisor and general foreman, chemical and related materials processing
7-00.50 Supervisor and general foreman, manufacturing of machinery and metal products
7-00.55 Supervisor and general foreman, manufacturing and installation of electrical and electronic equipment
7-00.60 Supervisor and general foreman, fabrication of products of paper, plastics, rubber, chemical and synthetic materials
7-00.65 Supervisor and general foreman, food and beverages processing
7-00.70 Supervisor and general foreman, production of textiles and clothing manufacturing
7-00.75 Supervisor and general foreman, construction work
7-00.80 Supervisor and general foreman, production and distribution of electricity, gas and water
7-00.90 Other production supervisors and general foremen

7-1 Miners, Quarrymen, Well Drillers and Related Workers

7-11 Miners and Quarrymen

7-11.05 Miner (general)
7-11.10 Quarryman (general)
7-11.20 Cutting-machine operator (mine)
7-11.30 Drilling-machine operator (mine and quarry)
7-11.40 Continuous-mining-machine operator
7-11.50 Shot-firer (mine and quarry)
7-11.60 Underground timberman
7-11.70 Sampler (mine)
7-11.90 Other miners and quarrymen

7-12 Mineral and Stone Treaters

7-12.20 Stone splitter
7-12.30 Mineral-crushing-machine operator
7-12.40 Mineral-milling-machine operator
7-12.50 Jig tender
7-12.60 Floatation man
7-12.70 Precipitator
7-12.80 Cone operator (mine)
7-12.90 Other mineral and stone treaters

7-13 Well Drillers, Borers and Related Workers

7-13.20 Derrickman (oil and gas wells)
7-13.30 Rotary driller (oil and gas wells)
7-13.40 Cable driller (oil and gas wells)
7-13.50 Cementer (oil and gas wells)
7-13.60 Well puller (oil and gas wells)
7-13.70 Acidiser (oil and gas wells)
7-13.80 Well driller and borer (except oil and gas wells)
7-13.90 Other well drillers, borers and related workers

7-2 Metal Processers

7-21 Metal Smelting, Converting and Refining Furnacemen

7-21.20 Blast furnaceman (ore smelting)
7-21.30 Open-hearth furnaceman (steel)
7-21.40 Oxygen furnaceman (steel converting)
7-21.50 Bessemer furnaceman (steel converting)
7-21.60 Electric arc furnaceman (steel refining)
7-21.70 Furnaceman (non-ferrous metal converting and refining)
7-21.90 Other metal smelting, converting and refining furnacemen

7-22 *Metal Rolling-Mill Workers*

7-22.20 Hot-roller (steel)
7-22.30 Continuous-mill roller (steel)
7-22.40 Cold-roller (steel)
7-22.50 Roller (non-ferrous metals)
7-22.60 Seamless pipe and tube roller
7-22.70 Manipulator (rolling mill)
7-22.90 Other metal rolling-mill workers

7-23 *Metal Melters and Reheaters*

7-23.20 Furnaceman (metal melting, except cupola)
7-23.30 Cupola furnaceman
7-23.40 Furnaceman (metal reheating)
7-23.90 Other metal melters and reheaters

7-24 *Metal Casters*

7-24.20 Metal pourer
7-24.30 Centrifugal casting-machine operator
7-24.40 Die-casting-machine operator
7-24.50 Continuous rod-casting-machine operator (non-ferrous metal)
7-24.90 Other metal casters

7-25 *Metal Moulders and Coremakers*

7-25.20 Bench moulder (metal)
7-25.30 Floor and pit moulder
7-25.40 Moulder (machine)
7-25.50 Coremaker (hand)
7-25.60 Coremaker (machine)
7-25.90 Other metal moulders and coremakers

7-26 *Metal Annealers, Temperers and Case-Hardeners*

7-26.20 Annealer
7-26.30 Hardener
7-26.40 Case-hardener
7-26.50 Temperer
7-26.90 Other metal annealers, temperers and case-hardeners

7-27 *Metal Drawers and Extruders*

7-27.20 Wire drawer (hand)
7-27.30 Wire drawer (machine)
7-27.40 Seamless pipe and tube drawer
7-27.50 Extruder operator (metal)
7-27.90 Other metal drawers and extruders

7-28 *Metal Platers and Coaters*

7-28.20 Electroplater
7-28.30 Hot-dip plater
7-28.40 Wire-coating-machine operator
7-28.50 Metal sprayer
7-28.90 Other metal platers and coaters

7-29 *Metal Processers Not Elsewhere Classified*

7-29.20 Metal bluer
7-29.30 Casting finisher
7-29.40 Metal cleaner
7-29.90 Other metal processers

7-3 Wood Preparation Workers and Paper Makers

7-31 *Wood Treaters*

7-31.20 Wood-seasoning worker
7-31.30 Wood-treating worker
7-31.90 Other wood treaters

7-32 *Sawyers, Plywood Makers and Related Wood-Processing Workers*

7-32.10 Sawmill sawyer (general)
7-32.20 Edge sawyer
7-32.30 Band-saw operator
7-32.40 Veneer cutter
7-32.50 Plywood core-laying-machine operator
7-32.60 Plywood press operator
7-32.70 Wood grader
7-32.90 Other sawyers, plywood makers and related wood-processing workers

7-33 *Paper Pulp Preparers*

7-33.20 Wood grinder
7-33.30 Chipperman
7-33.40 Digester operator
7-33.50 Bleacher operator
7-33.60 Beater operator
7-33.90 Other paper pulp preparers

7-34 *Paper Makers*

7-34.20 Paper-making-machine operator (wet end)
7-34.30 Paper-making-machine operator (back end)
7-34.40 Supercalender operator
7-34.50 Coating-machine operator
7-34.60 Paper maker (hand)
7-34.90 Other paper makers

7-4 Chemical Processers and Related Workers

7-41 *Crushers, Grinders and Mixers*

7-41.20 Crusher operator (chemical and related processes)
7-41.30 Miller-grinder (chemical and related processes)
7-41.40 Mixing- and blending-machine operator (chemical and related processes)
7-41.90 Other crushers, grinders and mixers

7-42 *Cookers, Roasters and Related Heat-Treaters*

7-42.20 Cooker (chemical and related processes)
7-42.30 Roaster (chemical and related processes)
7-42.40 Drier operator (chemical and related processes)
7-42.90 Other cookers, roasters and related heat-treaters

7-43 *Filter and Separator Operators*

7-43.20 Filter-press operator
7-43.30 Rotary-drum filterer
7-43.40 Centrifugal separator operator
7-43.50 Crude oil treater (oilfield)
7-43.90 Other filter and separator operators

7-44 *Still and Reactor Operators*

7-44.20 Batch-still operator (chemical processes, except petroleum)
7-44.30 Continuous-still operator (chemical processes, except petroleum)
7-44.40 Reactor-converter operator (chemical processes, except petroleum)
7-44.50 Evaporator operator
7-44.60 Extractor operator (wood distillation)
7-44.90 Other still and reactor operators

7-45 Petroleum-Refining Workers

7-45.20 Desulphurisation treater (petroleum refining)
7-45.30 Pumpman (petroleum refining)
7-45.40 Stillman (petroleum refining)
7-45.50 Controlman (petroleum refining)
7-45.60 Blender (petroleum refining)
7-45.70 Paraffin plant operator
7-45.90 Other petroleum-refining workers

7-49 Chemical Processers and Related Workers Not Elsewhere Classified

7-49.15 Chemical bleacher operator
7-49.20 Coke burner
7-49.25 Coal-gas maker
7-49.30 Charcoal burner
7-49.35 Synthetic fibre maker
7-49.40 Chemical processer (radioactive materials)
7-49.90 Other chemical processers and related workers

7-5 Spinners, Weavers, Knitters, Dyers and Related Workers

7-51 Fibre Preparers

7-51.15 Fibre grader and classer
7-51.20 Wool scourer
7-51.25 Fibre mixer and blender
7-51.30 Fibre picker
7-51.35 Fibre carder
7-51.40 Fibre lapper
7-51.45 Fibre comber
7-51.50 Fibre drawer
7-51.55 Fibre rover
7-51.90 Other fibre preparers

7-52 Spinners and Winders

7-52.20 Spinner, thread and yarn
7-52.30 Doubler
7-52.40 Twister
7-52.50 Winder
7-52.90 Other spinners and winders

7-53 Weaving- and Knitting-Machine Setters and Pattern-Card Preparers

7-53.20 Loom fixer
7-53.30 Knitting-machine setter
7-53.40 Jacquard design copyist
7-53.50 Jacquard card cutter
7-53.90 Other weaving- and knitting-machine setters and pattern-card preparers

7-54 Weavers and Related Workers

7-54.15 Beam warper
7-54.20 Loom threader (hand)
7-54.25 Loom threader (machine)
7-54.30 Cloth weaver (hand)
7-54.35 Tapestry maker (hand)
7-54.40 Cloth weaver (machine, except Jacquard loom)
7-54.45 Jacquard weaver
7-54.50 Lace weaver (machine)
7-54.55 Carpet weaver (hand)
7-54.60 Carpet weaver (machine)
7-54.65 Net maker (machine)
7-54.70 Fabrics examiner
7-54.75 Fabrics repairer
7-54.90 Other weavers and related workers

7-55 Knitters

7-55.20 Knitting-machine operator (garment)
7-55.30 Knitting-machine operator (hosiery)
7-55.40 Knitter (hand-operated machine)
7-55.50 Hand knitter
7-55.90 Other knitters

7-56 Bleachers, Dyers and Textile Product Finishers

7-56.15 Textile bleacher
7-56.20 Yarn dyer
7-56.25 Fabric dyer
7-56.30 Garment dyer
7-56.35 Textile washer
7-56.40 Silk degummer
7-56.45 Wool carboniser
7-56.50 Textile shrinker
7-56.55 Textile fuller
7-56.60 Textile waterproofer
7-56.65 Silk weighter
7-56.70 Textile calender operator
7-56.90 Other bleachers, dyers and textile product finishers

7-59 Spinners, Weavers, Knitters, Dyers and Related Workers Not Elsewhere Classified

7-59.20 Braid maker (hand)
7-59.25 Braid maker (machine)
7-59.30 Crocheter (hand)
7-59.35 Crocheter (machine)
7-59.40 Net maker (hand)
7-59.45 Fur fibre mixer (machine)
7-59.50 Felt hood former
7-59.90 Other spinners, weavers, knitters, dyers and related workers

7-6 Tanners, Fellmongers and Pelt Dressers

7-61 Tanners and Fellmongers

7-61.20 Hide and skin grader
7-61.25 Fellmonger
7-61.30 Hide flesher and dehairer (hand)
7-61.35 Hide flesher and dehairer (machine)
7-61.40 Hide splitter
7-61.45 Tanner
7-61.50 Leather currier
7-61.55 Leather dyer and stainer
7-61.90 Other tanners and fellmongers

7-62 Pelt Dressers

7-62.20 Pelt grader
7-62.30 Pelt flesher
7-62.40 Pelt plucker and trimmer
7-62.50 Pelt dyer (hand)
7-62.60 Pelt stretcher
7-62.90 Other pelt dressers

7-7 Food and Beverage Processers

7-71 Grain Millers and Related Workers

7-71.20 Grain miller
7-71.30 Rice miller
7-71.40 Spice miller
7-71.90 Other grain millers and related workers

7-72 Sugar Processers and Refiners

7-72.20 Sugar-cane grinder
7-72.30 Diffuser operator (beet sugar)
7-72.40 Carbonation man (sugar refining)

7-72.50 Crystalliser operator (sugar refining)
7-72.60 Continuous sugar-refining-machine operator
7-72.90 Other sugar processers and refiners

7-73 *Butchers and Meat Preparers*

7-73.10 Butcher, general
7-73.20 Slaughterer
7-73.30 Meat cutter
7-73.40 Sausage maker
7-73.90 Other butchers and meat preparers

7-74 *Food Preservers*

7-74.10 Preserving cook, general
7-74.15 Fish-preserving cook
7-74.20 Sterilising cook
7-74.30 Foodstuffs freezer
7-74.40 Foodstuffs dehydrator
7-74.50 Pickler, food
7-74.60 Meat and fish smoker
7-74.90 Other food preservers

7-75 *Dairy Product Processers*

7-75.10 Dairy product processer (general)
7-75.20 Dairy product pasteuriser
7-75.30 Butter maker
7-75.40 Cheese maker
7-75.50 Ice-cream maker
7-75.90 Other dairy product processers

7-76 *Bakers, Pastrycooks and Confectionery Makers*

7-76.10 Baker, general
7-76.20 Bread baker
7-76.30 Pastry maker
7-76.40 Macaroni maker
7-76.50 Chocolate maker
7-76.60 Confectionery maker
7-76.90 Other bakers, pastrycooks and confectionery makers

7-77 *Tea, Coffee and Cocoa Preparers*

7-77.20 Coffee and tea taster
7-77.30 Coffee blender
7-77.40 Tea blender
7-77.50 Coffee roaster
7-77.60 Cocoa-bean roaster
7-77.90 Other tea, coffee and cocoa preparers

7-78 *Brewers, Wine and Beverage Makers*

7-78.20 Germination worker (malting)
7-78.25 Kilnman (malting)
7-78.30 Malt cooker
7-78.35 Fermenting-room man
7-78.40 Yeast maker
7-78.50 Wine worker
7-78.60 Wine and liquor taster
7-78.70 Vinegar maker
7-78.80 Fruit-press operator
7-78.90 Other brewers, wine and beverage makers

7-79 *Food and Beverage Processers Not Elsewhere Classified*

7-79.20 Oil pressman (edible oils)
7-79.25 Refining-machine operator (oils and fats)
7-79.30 Hydrogenation operator (oils and fats)
7-79.40 Fish butcher
7-79.90 Other food and beverage processers

7-8 Tobacco Preparers and Tobacco Product Makers

7-81 *Tobacco Preparers*

7-81.20 Tobacco grader
7-81.30 Tobacco blender
7-81.40 Tobacco conditioner operator
7-81.50 Tobacco stripper (hand)
7-81.60 Tobacco stripper (machine)
7-81.70 Tobacco-cutting-machine operator
7-81.90 Other tobacco preparers

7-82 *Cigar Makers*

7-82.20 Cigar maker (hand)
7-82.30 Cigar maker (machine)
7-82.90 Other cigar makers

7-83 *Cigarette Makers*

7-83.20 Cigarette maker (machine)
7-83.90 Other cigarette makers

7-89 *Tobacco Preparers and Tobacco Product Makers Not Elsewhere Classified*

7-89.20 Snuff maker
7-89.90 Other tobacco preparers and tobacco products makers

7-9 Tailors, Dressmakers, Sewers, Upholsterers and Related Workers

7-91 *Tailors and Dressmakers*

7-91.20 Tailor (made-to-measure garments)
7-91.30 Tailor (ready-to-wear garments)
7-91.40 Dressmaker
7-91.90 Other tailors and dressmakers

7-92 *Fur Tailors and Related Workers*

7-92.20 Fur tailor
7-92.30 Fur patternmaker
7-92.40 Fur grader and matcher
7-92.50 Fur cutter
7-92.60 Fur nailer
7-92.90 Other fur tailors and related workers

7-93 *Milliners and Hatmakers*

7-93.20 Milliner
7-93.30 Hat-blocking-machine operator
7-93.90 Other milliners and hatmakers

7-94 *Patternmakers and Cutters*

7-94.20 Garment patternmaker
7-94.30 Hat and cap patternmaker
7-94.40 Garment marker
7-94.50 Garment cutter, except leather
7-94.60 Leather garment cutter
7-94.70 Glove cutter, except leather
7-94.80 Leather glove cutter
7-94.90 Other patternmakers and cutters

7-95 *Sewers and Embroiderers*

7-95.10 Hand and machine sewer (general)
7-95.20 Garment hand sewer (except leather and fur)
7-95.30 Leather garment hand sewer
7-95.40 Fur hand sewer
7-95.50 Sewing-machine operator
7-95.60 Hand embroiderer
7-95.70 Machine embroiderer
7-95.90 Other sewers and embroiderers

7-96 Upholsterers and Related Workers

7-96.20 Furniture upholsterer
7-96.30 Vehicle upholsterer
7-96.40 Mattress maker
7-96.90 Other upholsterers and related workers

7-99 Tailors, Dressmakers, Sewers, Upholsterers and Related Workers Not Elsewhere Classified

7-99.20 Sail, tent and awning maker
7-99.30 Umbrella maker
7-99.90 Other tailors, dressmakers, sewers, upholsterers and related workers

8-0 Shoemakers and Leather Goods Makers

8-01 Shoemakers and Shoe Repairers

8-01.10 Shoemaker (general)
8-01.20 Orthopaedic footwear maker
8-01.30 Shoe repairer
8-01.90 Other shoemakers and shoe repairers

8-02 Shoe Cutters, Lasters, Sewers and Related Workers

8-02.15 Shoe patternmaker
8-02.20 Clicker cutter (machine)
8-02.25 Shoe cutter (hand)
8-02.30 Uppers preparer
8-02.35 Sole pressman
8-02.40 Sole fitter
8-02.45 Laster
8-02.50 Shoe sewer (machine)
8-02.55 Shoe finisher
8-02.90 Other shoe cutters, lasters, sewers and related workers

8-03 Leather Goods Makers

8-03.10 Leather goods maker (general)
8-03.20 Saddler and harness maker
8-03.30 Leather cutter
8-03.40 Leather sewer (hand)
8-03.50 Leather sewer (machine)
8-03.60 Leather goods assembler
8-03.90 Other leather goods makers

8-1 Cabinetmakers and Related Woodworkers

8-11 Cabinetmakers

8-11.20 Cabinetmaker
8-11.90 Other cabinetmakers

8-12 Woodworking-Machine Operators

8-12.05 Woodworking-machine setter (general)
8-12.08 Woodworking-machine operator (general)
8-12.10 Woodworking-machine setter-operator (general)
8-12.20 Precision sawyer
8-12.30 Wood turner
8-12.40 Wood-lathe setter-operator
8-12.50 Wood-shaping-machine setter-operator
8-12.60 Wood-routing-machine setter-operator
8-12.70 Wood-planing-machine setter-operator
8-12.80 Wood-spindle-carving-machine setter-operator
8-12.90 Other woodworking machine operators

8-19 Cabinetmakers and Related Woodworkers Not Elsewhere Classified

8-19.20 Coach-body builder
8-19.25 Cartwright
8-19.30 Cooper
8-19.35 Wooden patternmaker
8-19.40 Wooden model maker
8-19.45 Wood carver
8-19.50 Veneer applier
8-19.55 Wooden furniture finisher
8-19.60 Smoking-pipe maker
8-19.65 Marquetry inlayer
8-19.90 Other cabinetmakers and related woodworkers

8-2 Stone Cutters and Carvers

8-20 Stone Cutters and Carvers

8-20.20 Stone cutter and finisher
8-20.30 Stone grader
8-20.40 Stonework layout man
8-20.50 Stone lathe operator
8-20.60 Stone letter cutter (hand)
8-20.70 Stone carver (hand)
8-20.80 Monument carver-setter
8-20.90 Other stone cutters and carvers

8-3 Blacksmiths, Toolmakers and Machine Tool Operators

8-31 Blacksmiths, Hammersmiths and Forging-Press Operators

8-31.10 Blacksmith (general)
8-31.20 Hammersmith
8-31.30 Drop-hammer operator
8-31.40 Forging-press operator
8-31.90 Other blacksmiths, hammersmiths and forging-press operators

8-32 Toolmakers, Metal Pattern Makers and Metal Markers

8-32.20 Tool and die maker
8-32.30 Jig and gauge maker
8-32.40 Metal pattern maker (foundry)
8-32.50 Metal marker
8-32.90 Other toolmakers, metal patternmakers and metal markers

8-33 Machine-Tool Setter-Operators

8-33.05 Metalworking-machine setter (general)
8-33.10 Metalworking-machine setter-operator (general)
8-33.20 Lathe setter-operator
8-33.30 Milling-machine setter-operator
8-33.40 Planing-machine setter-operator
8-33.50 Boring-machine setter-operator
8-33.60 Drilling-machine setter-operator
8-33.70 Precision-grinding-machine setter-operator
8-33.80 Honing-machine setter-operator
8-33.85 Numerical-control-machine setter-operator
8-33.90 Other machine-tool setter-operators

8-34 Machine-Tool Operators

8-34.10 Machine-tool operator (general)
8-34.20 Lathe operator
8-34.30 Milling-machine operator
8-34.40 Planing-machine operator
8-34.50 Boring-machine operator
8-34.60 Drilling-machine operator
8-34.65 Precision-grinding-machine operator

8-34.70	Honing-machine operator
8-34.75	Metal-sawing-machine operator
8-34.80	Automatic transfer-machine operator
8-34.90	Other machine-tool operators

8-35 *Metal Grinders, Polishers and Tool Sharpeners*

8-35.20	Buffing- and polishing-machine operator
8-35.30	Tool grinder, machine tools
8-35.40	Cutting instruments sharpener
8-35.50	Saw repairer and sharpener
8-35.60	Textile card grinder
8-35.90	Other metal grinders, polishers and tool sharpeners

8-39 *Blacksmiths, Toolmakers and Machine-Tool Operators Not Elsewhere Classified*

8-39.20	Gunsmith
8-39.30	Locksmith
8-39.40	Metal spinner
8-39.50	Metal former (hand)
8-39.60	Metal-press operator
8-39.70	Metal-bending-machine operator
8-39.80	Power-shear operator
8-39.90	Other blacksmiths, toolmakers and machine-tool operators

8-4 Machinery Fitters, Machine Assemblers and Precision-Instrument Makers (except Electrical)

8-41 *Machinery Fitters and Machine Assemblers*

8-41.05	Machinery fitter (general)
8-41.10	Machinery fitter-assembler (general)
8-41.15	Internal combustion engine fitter-assembler (except aircraft and marine engines)
8-41.20	Aircraft engine fitter-assembler
8-41.25	Marine engine fitter-assembler
8-41.30	Turbine fitter-assembler (except aircraft and marine)
8-41.35	Metalworking machine - tool fitter-assembler
8-41.40	Mining machinery fitter-assembler
8-41.45	Printing machinery fitter-assembler
8-41.50	Textile machinery fitter-assembler
8-41.55	Woodworking machinery fitter-assembler
8-41.60	Agricultural machinery fitter-assembler
8-41.65	Earth-moving equipment fitter-assembler
8-41.70	Office machinery fitter-assembler
8-41.75	Machinery erector and installer
8-41.80	Refrigeration and air-conditioning plan installer and mechanic
8-41.85	Airframe fitter-assembler
8-41.90	Other machinery fitters and machine assemblers

8-42 *Watch, Clock and Precision-Instrument Makers*

8-42.20	Watch and clock assembler
8-42.25	Watch and clock repairer
8-42.30	Precision-instrument maker and repairer
8-42.35	Optical instrument maker and repairer
8-42.40	Precision-instrument assembler
8-42.45	Orthopaedic appliance maker and repairer
8-42.50	Dental prosthesis maker and repairer
8-42.90	Other watch, clock and precision-instrument makers

8-43 *Motor-Vehicle Mechanics*

8-43.20	Automobile mechanic
8-43.30	Motor-truck mechanic
8-43.40	Motor-cycle mechanic
8-43.90	Other motor-vehicle mechanics

8-44 *Aircraft Engine Mechanics*

8-44.10	Aircraft engine mechanic (general)
8-44.20	Aircraft engine service mechanic
8-44.90	Other aircraft engine mechanics

8-49 *Machinery Fitters, Machine Assemblers and Precision-Instrument Makers (except Electrical) Not Elsewhere Classified*

8-49.10	Machinery mechanic (general)
8-49.15	Reciprocating steam-engine mechanic
8-49.20	Diesel engine mechanic (except motor vehicle)
8-49.25	Turbine mechanic (except aircraft and marine turbines)
8-49.30	Metalworking machine-tool mechanic
8-49.35	Mining machinery mechanic
8-49.40	Printing machinery mechanic
8-49.45	Textile machinery mechanic
8-49.50	Woodworking machinery mechanic
8-49.55	Agricultural machinery mechanic
8-49.60	Earth-moving equipment and construction machinery mechanic
8-49.65	Office machines mechanic
8-49.70	Plant maintenance mechanic
8-49.75	Pedal-cycle repairer
8-49.80	Oiler and greaser (except ships' engines)
8-49.85	Mechanical products inspector and tester
8-49.90	Other machinery fitters, machine assemblers and precision-instrument makers (except electrical)

8-5 Electrical Fitters and Related Electrical and Electronics Workers

8-51 *Electrical Fitters*

8-51.10	Electrical fitter (general)
8-51.20	Electrical motor and generator fitter
8-51.30	Electrical transformer fitter
8-51.40	Electrical switchgear and control apparatus fitter
8-51.50	Electrical instrument fitter
8-51.60	Electrical elevator and related equipment fitter
8-51.90	Other electrical fitters

8-52 *Electronics Fitters*

8-52.10	Electronics fitter (general)
8-52.20	Electronics fitter (radio, television and radar equipment)
8-52.30	Electronics fitter (medical equipment)
8-52.40	Electronic computer and related equipment fitter
8-52.50	Electronics fitter (industrial equipment)
8-52.60	Electronic signalling systems fitter
8-52.90	Other electronics fitters

8-53 *Electrical and Electronic Equipment Assemblers*

8-53.20	Electrical equipment assembler
8-53.30	Electronic equipment assembler
8-53.40	Coil winder (machine)
8-53.50	Coil winder (hand)
8-53.90	Other electrical and electronic equipment assemblers

8-54 *Radio and Television Repairmen*

8-54.20	Radio and television mechanic
8-54.90	Other radio and television repairmen

8-55 Electrical Wiremen

8-55.10	Electrican, general
8-55.20	Building electrician
8-55.30	Aircraft electrician
8-55.35	Ship's electrician
8-55.40	Vehicle electrician
8-55.50	Stage and studio electrician
8-55.60	Maintenance electrician
8-55.70	Electrical repairman
8-55.90	Other electrical wiremen

8-56 Telephone and Telegraph Installers

8-56.20	Telephone and telegraph installer
8-56.30	Telephone and telegraph mechanic
8-56.90	Other telephone and telegraph installers

8-57 Electric Linemen and Cable Jointers

8-57.20	Electric power lineman
8-57.30	Electric traction lineman
8-57.40	Telephone and telegraph lineman
8-57.50	Electric cable jointer
8-57.90	Other electric linemen and cable jointers

8-59 Electrical Fitters and Related Electrical and Electronics Workers Not Elsewhere Classified

8-59.20	Electrical and electronic products inspector and tester
8-59.90	Other electrical fitters and related electrical and electronics workers

8-6 Broadcasting Station and Sound-Equipment Operators and Cinema Projectionists

8-61 Broadcasting Station Operators

8-61.20	Radio and television transmitting equipment operator
8-61.30	Radio and television studio equipment operator
8-61.90	Other broadcasting station operators

8-62 Sound-Equipment Operators and Cinema Projectionists

8-62.20	Sound-recording equipment operator
8-62.30	Public address equipment operator
8-62.40	Cinema projectionist
8-62.90	Other sound-equipment operators and cinema projectionists

8-7 Plumbers, Welders, Sheet-Metal and Structural Metal Preparers and Erectors

8-71 Plumbers and Pipe Fitters

8-71.05	Plumber (general)
8-71.10	Pipe fitter (general)
8-71.20	Gas pipe fitter
8-71.30	Marine pipe fitter
8-71.40	Aircraft pipe and tube fitter
8-71.90	Other plumbers and pipe fitters

8-72 Welders and Flame-Cutters

8-72.10	Gas and electric welder (general)
8-72.15	Gas welder
8-72.20	Electric arc welder (hand)
8-72.25	Electric arc welder (machine)
8-72.30	Thermite welder
8-72.35	Resistance welder
8-72.40	Lead burner
8-72.45	Brazer
8-72.50	Flame-cutter (hand)
8-72.55	Flame-cutter (machine)
8-72.60	Solderer (hand)
8-72.90	Other welders and flame-cutters

8-73 Sheet-Metal Workers

8-73.10	Sheet-metal worker, general
8-73.20	Sheet-metal marker
8-73.30	Coppersmith
8-73.40	Tinsmith
8-73.50	Boilersmith
8-73.60	Ornamental sheet-metal worker
8-73.70	Vehicle sheet-metal worker
8-73.80	Aircraft sheet-metal worker
8-73.90	Other sheet-metal workers

8-74 Structural Metal Preparers and Erectors

8-74.20	Structural metal marker
8-74.30	Structural steel worker (workshop)
8-74.40	Constructional steel erector
8-74.50	Metal shipwright
8-74.55	Ship plater
8-74.60	Hand riveter
8-74.65	Machine riveter
8-74.70	Pneumatic riveter
8-74.90	Other structural metal preparers and erectors

8-8 Jewellery and Precious Metal Workers

8-80 Jewellery and Precious Metal Workers

8-80.10	Jeweller (general)
8-80.20	Jewellery repairer
8-80.30	Gem cutter and polisher
8-80.40	Gem setter
8-80.50	Goldsmith and silversmith
8-80.60	Precious metal roller
8-80.70	Precious metal leaf maker
8-80.80	Jewellery engraver
8-80.90	Other jewellery and precious metal workers

8-9 Glass Formers, Potters and Related Workers

8-91 Glass Formers, Cutters, Grinders and Finishers

8-91.20	Glass blower
8-91.24	Scientific glass blower
8-91.28	Glass-blowing-machine operator
8-91.32	Glass lens moulder
8-91.36	Glass-pressing-machine operator
8-91.40	Glass-drawing-machine operator
8-91.44	Plate-glass rollerman
8-91.48	Plate-glass polisher
8-91.52	Float-glass bath operator
8-91.56	Glass cutter
8-91.60	Optical glass cutter
8-91.64	Glass edge grinder
8-91.68	Lens grinding-machine operator
8-91.72	Lens polishing-machine operator
8-91.76	Glass tube maker
8-91.80	Glass tube bender
8-91.90	Other glass formers, cutters, grinders and finishers

8-92 Potters and Related Clay and Abrasive Formers

8-92.10	Potter (general)
8-92.15	Pottery and porcelain modeller
8-92.20	Pottery and porcelain mould maker

8-92.25 Pottery and porcelain thrower
8-92.30 Pottery and porcelain jiggerman
8-92.35 Pottery and porcelain caster (hand)
8-92.40 Brick and tile moulder (hand)
8-92.45 Pottery and porcelain presser (hand)
8-92.50 Pottery and porcelain die-presser
8-92.55 Clay extruding-press operator
8-92.60 Abrasive wheel moulder
8-92.90 Other potters and related clay and abrasive formers

8-93 Glass and Ceramics Kilnmen

8-93.20 Glass-making furnaceman
8-93.30 Glass-annealing furnaceman
8-93.40 Glass temperer
8-93.50 Pottery and porcelain kilnman
8-93.60 Brick and tile kilnman
8-93.90 Other glass and ceramics kilnmen

8-94 Glass Engravers and Etchers

8-94.20 Glass engraver
8-94.30 Glass etcher
8-94.40 Glass sandblaster
8-94.90 Other glass engravers and etchers

8-95 Glass and Ceramics Painters and Decorators

8-95.20 Glass painter
8-95.30 Ceramics painter
8-95.40 Ceramics decorator
8-95.50 Ceramics spray-painter
8-95.60 Ceramics dipper
8-95.70 Mirror silverer
8-95.90 Other glass and ceramics painters and decorators

8-99 Glass Formers, Potters and Related Workers Not Elsewhere Classified

8-99.20 Glass mixer
8-99.30 Clay mixer
8-99.40 Clay slip maker
8-99.50 Glaze maker
8-99.60 Abrasives mixer
8-99.70 Fibreglass maker
8-99.90 Other glass formers, potters and related workers

9-0 Rubber and Plastics Product Makers

9-01 Rubber and Plastics Product Makers (Except Tire Makers and Tire Vulcanisers)

9-01.20 Rubber millman
9-01.25 Rubber calender operator
9-01.30 Rubber extruding-machine operator
9-01.35 Rubber moulding-press operator
9-01.40 Rubber goods assembler
9-01.50 Plastics injection-moulding-machine operator
9-01.55 Plastics compression-moulding-machine operator
9-01.60 Plastics extruding-machine operator
9-01.65 Plastics laminator
9-01.70 Plastics products assembler
9-01.80 Plastics products fabricator
9-01.90 Other rubber and plastics products makers (except tire makers and tire vulcanisers)

9-02 Tire Makers and Vulcanisers

9-02.20 Tire builder
9-02.30 Tire moulder
9-02.40 Tire rebuilder
9-02.90 Other tire makers and vulcanisers

9-1 Paper and Paperboard Products Makers

9-10 Paper and Paperboard Products Makers

9-10.20 Paper box maker (hand)
9-10.30 Paper box maker (machine)
9-10.40 Cardboard lining-machine operator
9-10.50 Paper box cutting- and creasing-press operator
9-10.60 Cardboard-press operator
9-10.70 Paper bag and envelope maker (machine)
9-10.80 Cellophane bag maker (machine)
9-10.90 Other paper and paperboard products makers

9-2 Printers and Related Workers

9-21 Compositors and Type-Setters

9-21.10 Printer, general
9-21.20 Hand compositor
9-21.30 Linotype operator
9-21.35 Monotype keyboard operator
9-21.40 Type-casting-machine operator
9-21.45 Printing maker-up
9-21.50 Imposer
9-21.55 Photo-type-setting machine operator
9-21.90 Other compositors and type-setters

9-22 Printing Pressmen

9-22.20 Cylinder pressman
9-22.25 Platen pressman
9-22.30 Rotary pressman
9-22.40 Offset pressman
9-22.50 Direct lithographic pressman
9-22.60 Rotogravure pressman
9-22.70 Wallpaper printer
9-22.90 Other printing pressmen

9-23 Stereotypers and Electrotypers

9-23.20 Stereotyper
9-23.30 Electrotyper
9-23.90 Other stereotypers and electrotypers

9-24 Printing Engravers (except Photo-Engravers)

9-24.15 Lithographic stone engraver
9-24.20 Metal printing plate, roller and die engraver (hand)
9-24.30 Wood, rubber or linoleum block engraver (hand)
9-24.40 Metal printing roller engraver (machine)
9-24.45 Engraving pantograph operator
9-24.50 Direct lithographic transferrer
9-24.60 Metal engraving etcher
9-24.90 Other printing engravers (except photo-engravers)

9-25 Photo-Engravers

9-25.10 Photo-engraver (general)
9-25.20 Photogravure cameraman
9-25.30 Photogravure retoucher
9-25.40 Photo-mechanical transferrer
9-25.50 Photogravure etcher
9-25.60 Printing plate retoucher
9-25.90 Other photo-engravers

9-26 *Bookbinders and Related Workers*

9-26.20 Bookbinder (hand)
9-26.30 Bookbinder (machine)
9-26.40 Book embosser (hand)
9-26.50 Book embosser (machine)
9-26.90 Other bookbinders and related workers

9-27 *Photographic Dark-Room Workers*

9-27.20 Colour developer
9-27.30 Black-and-white developer
9-27.40 Photograph printer
9-27.50 Photograph enlarger
9-27.90 Other photographic dark-room workers

9-29 *Printers and Related Workers Not Elsewhere Classified*

9-29.20 Silk-screen stencil cutter
9-29.30 Silk-screen printer
9-29.40 Block printer
9-29.50 Textile printer
9-29.90 Other printers and related workers

9-3 Painters

9-31 *Painters, Construction*

9-31.20 Building painter
9-31.30 Structural steel and ship painter
9-31.90 Other painters, construction

9-39 *Painters Not Elsewhere Classified*

9-39.20 Brush-painter (except construction)
9-39.30 Spray-painter (except construction)
9-39.40 Hand dipper
9-39.50 Sign-painter
9-39.60 Automobile painter
9-39.90 Other painters

9-4 Production and Related Workers Not Elsewhere Classified

9-41 *Musical Instrument Makers and Tuners*

9-41.20 Stringed instrument maker
9-41.30 Woodwind instrument maker
9-41.40 Metal wind instrument maker
9-41.50 Accordion maker
9-41.60 Organ builder
9-41.70 Piano maker
9-41.80 Musical instrument tuner
9-41.90 Other musical instrument makers and tuners

9-42 *Basketry Weavers and Brush Makers*

9-42.20 Basket maker
9-42.30 Brush maker (hand)
9-42.40 Broom maker (hand)
9-42.50 Wicker furniture maker
9-42.90 Other basketry weavers and brush makers

9-43 *Non-Metallic Mineral Product Makers*

9-43.20 Cast concrete product maker
9-43.30 Asbestos cement product maker
9-43.40 Cast stone maker
9-43.90 Other non-metallic mineral product makers

9-49 *Other Production and Related Workers*

9-49.20 Taxidermist
9-49.30 Linoleum maker
9-49.40 Doll and stuffed toy maker
9-49.50 Rubber stamp maker
9-49.60 Candle maker
9-49.70 Photographic film and paper maker
9-49.80 Quality inspector
9-49.90 Other production and related workers not elsewhere classified

9-5 Bricklayers, Carpenters and Other Construction Workers

9-51 *Bricklayers, Stonemasons and Tile Setters*

9-51.20 Bricklayer (construction)
9-51.25 Bricklayer (chimney building)
9-51.30 Firebrick layer
9-51.40 Stonemason (construction)
9-51.45 Marble setter
9-51.50 Tile setter
9-51.55 Mosaic cutter and setter
9-51.60 Paviour
9-51.90 Other bricklayers, stonemasons and tile setters

9-52 *Reinforced Concreters, Cement Finishers and Terrazzo Workers*

9-52.10 Reinforced concreter (general)
9-52.20 Concrete shutterer
9-52.30 Reinforcing iron worker
9-52.40 Cement finisher
9-52.50 Terrazzo worker
9-52.90 Other reinforced concreters, cement finishers and terrazzo workers

9-53 *Roofers*

9-53.20 Slate and tile roofer
9-53.30 Composition roofer
9-53.40 Asphalt roofer
9-53.50 Metal roofer
9-53.60 Roof thatcher
9-53.90 Other roofers

9-54 *Carpenters, Joiners and Parquetry Workers*

9-54.10 Carpenter, general
9-54.15 Construction carpenter
9-54.20 Construction joiner
9-54.30 Stage and studio carpenter
9-54.40 Wood shipwright
9-54.45 Ship joiner
9-54.50 Wooden boatbuilder
9-54.55 Ship's carpenter
9-54.60 Aircraft joiner
9-54.70 Bench carpenter
9-54.75 Parquetry worker
9-54.90 Other carpenters, joiners and parquetry workers

9-55 *Plasterers*

9-55.10 Plasterer, general
9-55.20 Ornamental plasterer
9-55.30 Stucco plasterer
9-55.40 Fibrous plasterer
9-55.90 Other plasterers

9-56 *Insulators*

9-56.20 Building insulator (hand)
9-56.30 Building insulator (machine)
9-56.40 Acoustical insulator
9-56.50 Boiler and pipe insulator

9-56.60	Refrigeration and air-conditioning equipment insulator
9-56.90	Other insulators

9-57 *Glaziers*

9-57.20	Building glazier
9-57.30	Patent roofing glazier
9-57.40	Plate-glass glazier
9-57.50	Leaded-glass glazier
9-57.60	Vehicle glazier
9-57.90	Other glaziers

9-59 *Construction Workers Not Elsewhere Classified*

9-59.10	Housebuilder (general)
9-59.20	Building maintenance man
9-59.25	Paperhanger
9-59.30	Steeplejack
9-59.40	Scaffolder
9-59.45	Demolition worker
9-59.50	Pipe layer
9-59.55	Well digger
9-59.60	Underwater worker
9-59.70	Composition tile layer
9-59.75	Building exterior cleaner
9-59.90	Other construction workers

9-6 Stationary Engine and Related Equipment Operators

9-61 *Power-Generating Machinery Operators*

9-61.20	Power-plant operator (steam)
9-61.30	Hydroelectric station operator
9-61.40	Power reactor operator
9-61.50	Turbine operator (power station)
9-61.60	Power switchboard operator
9-61.70	Load dispatcher (electric power)
9-61.90	Other power-generating machinery operators

9-69 *Stationary Engine and Related Equipment Operators Not Elsewhere Classified*

9-69.10	Stationary engine operator (general)
9-69.20	Air-compressor operator
9-69.25	Gas-compressor operator
9-69.30	Boiler fireman
9-69.40	Pumping-station operator
9-69.50	Water treatment plant operator (waterworks)
9-69.60	Incinerator plant operator
9-69.70	Refrigeration system operator
9-69.80	Heating and ventilation equipment operator
9-69.90	Other stationary engine and related equipment operators

9-7 Material Handling and Related Equipment Operators, Dockers and Freight Handlers

9-71 *Dockers and Freight Handlers*

9-71.20	Docker
9-71.30	Railway and road vehicle loader
9-71.35	Aircraft loader
9-71.40	Boat loader (liquids and gases)
9-71.45	Warehouse porter
9-71.50	Hand packer
9-71.55	Machine packer
9-71.60	Machine labeller
9-71.70	Bale-press operator
9-71.90	Other dockers and freight handlers

9-72 *Riggers and Cable Splicers*

9-72.05	Hoisting equipment rigger (general)
9-72.10	Rope and cable splicer (general)
9-72.20	Hoisting equipment rigger (construction)
9-72.30	Ship rigger
9-72.40	Aircraft rigger
9-72.50	Oil and gas well-drilling rigger
9-72.60	Suspension bridge cable worker
9-72.90	Other riggers and cable splicers

9-73 *Crane and Hoist Operators*

9-73.20	Bridge- or gantry-crane operator
9-73.25	Stationary jib-crane operator
9-73.27	Tower-crane operator
9-73.30	Mobile-crane operator
9-73.35	Hoist operator (construction)
9-73.40	Hoist operator (mine)
9-73.45	Mine cageman
9-73.50	Winch operator
9-73.55	Opening bridge operator
9-73.90	Other crane and hoist operators

9-74 *Earth-Moving and Related Machinery Operators*

9-74.20	Excavating-machine operator
9-74.25	Trench-digging-machine operator
9-74.30	Bulldozer operator
9-74.35	Dredge operator
9-74.40	Pile-driver operator
9-74.45	Road-grader and scraper operator
9-74.50	Road-roller operator
9-74.55	Concrete paving-machine operator
9-74.60	Tar-spreading machine operator
9-74.70	Concrete-mixer operator
9-74.75	Concrete-mixing-plant operator
9-74.90	Other earth-moving and related machinery operators

9-79 *Material Handling Equipment Operators No Elsewhere Classified*

9-79.20	Lifting-truck operator
9-79.30	Dumper driver
9-79.40	Shuttle-car operator (mine)
9-79.50	Timber-carrier driver
9-79.90	Other material handling equipment operators

9-8 Transport Equipment Operators

9-81 *Ships' Deck Ratings, Barge Crews and Boatmen*

9-81.20	Boatswain
9-81.30	Able seaman
9-81.40	Ordinary seaman
9-81.90	Other ships' deck ratings, barge crews and boatmen

9-82 *Ships' Engine-Room Ratings*

9-82.20	Ship's fireman
9-82.30	Ship's oiler and greaser
9-82.90	Other ships' engine-room ratings

9-83 *Railway Engine-Drivers and Firemen*

9-83.20	Railway engine-driver
9-83.30	Railway steam-engine fireman
9-83.40	Assistant railway engine-driver
9-83.50	Underground or elevated train driver
9-83.60	Engine-driver (mine and quarry)
9-83.90	Other railway engine-drivers and firemen

9-84 Railway Brakemen, Signalmen and Shunters
9-84.20 Railway brakeman (freight train)
9-84.30 Railway signalman
9-84.40 Railway shunter
9-84.50 Mine and quarry brakeman

9-85 Motor-Vehicle Drivers
9-85.20 Tram driver
9-85.30 Taxi driver
9-85.40 Motor bus driver
9-85.50 Lorry and van driver (local transport)
9-85.60 Lorry and van driver (long-distance transport)
9-85.70 Motor-cyclist
9-85.90 Other motor-vehicle drivers

9-86 Animal and Animal-Drawn Vehicle Drivers
9-86.20 Animal-drawn vehicle driver (road)
9-86.30 Animal-drawn vehicle driver (mine and quarry)
9-86.90 Other animal and animal-drawn vehicle drivers

9-89 Transport Equipment Operators Not Elsewhere Classified
9-89.20 Dockmaster, dry-dock
9-89.30 Lock operator (canal or port)
9-89.40 Lighthouse man
9-89.50 Pedal-vehicle driver
9-89.90 Other transport equipment operators

9-9 Labourers Not Elsewhere Classified

9-99 Labourers Not Elsewhere Classified
9-99.10 Labourer

MAJOR GROUP X

WORKERS NOT CLASSIFIABLE BY OCCUPATION

X-1 New Workers Seeking Employment

X-10 New Workers Seeking Employment
X-10.10 New workers seeking employment

X-2 Workers Reporting Occupations Unidentifiable or Inadequately Described

X-20 Workers Reporting Occupations Unidentifiable or Inadequately Described
X-20.10 Workers reporting occupations unidentifiable or inadequately described

X-3 Workers Not Reporting Any Occupation

X-30 Workers Not Reporting Any Occupation
X-30.10 Workers not reporting any occupation

ARMED FORCES

MEMBERS OF THE ARMED FORCES

CONVERSION TABLE

Explanatory Note

The Conversion Table presented below is intended to show where the occupations covered by the different unit groups of ISCO (1958 edition) have been included in the revised classification. The objectives are, first, to assist persons wishing to convert existing data already classified in accordance with ISCO (1958 edition) to make them conform as closely as possible with the revised classification structure; and second, to assist those responsible for the revision of national classifications who desire to take the revised international classification into account in their work.

Many of the revised unit groups correspond closely with former unit groups. Where certain occupations included in the old group have not been retained within the scope of the new unit group, an attempt has been made to list significant exceptions of this kind under the old unit group title, in the left-hand column. The new unit groups to which these occupations have been transferred are identified in the right-hand column, in brackets, in italics.

Since the number of unit groups is now 284, compared with 201 formerly, one old unit group may be covered by a combination of several new unit groups. On the other hand, in a few cases one new unit group comprises several of the old groups; in these instances, the title of the new unit group is shown on the right, preceded by the symbol †, opposite each of the ISCO 1958 unit groups covered. The symbol also appears against a new unit group title shown on the right-hand side if it includes one or more occupations which were not within the scope of the old unit group indicated on the left.

The abbreviation N.E.C. indicates "not elsewhere classified".

ISCO 1958	REVISED ISCO
Major Group 0	
0-0 ARCHITECTS, ENGINEERS AND SURVEYORS	
0-01 Architects	0-21† Architects and town planners
0-02 Engineers:	
Civil engineers (0-02.02 to 0-02.22)	0-22 Civil engineers
Electrical engineers (0-02.24 to 0-02.36)	0-23 Electrical and electronics engineers
Mechanical engineers (0-02.38 to 0-02.58)	0-24† Mechanical engineers
Chemical and metallurgical engineers (0-02.60 to 0-02.72)	0-25 Chemical engineers 0-26 Metallurgists

ISCO 1958	REVISED ISCO
Except:	
Ceramic and glass engineer (0-02.70)	[*Included in 0-29*]
Mining engineers (0-02.74 to 0-02.82)	0-27 Mining engineers
Engineers, other (0-02.84 to 0-02.99)	0-28† Industrial engineers 0-29† Engineers N.E.C.
Except:	
Naval architect (0-02.90)	[*Included in 0-24*]
0-03 Surveyors	0-31 Surveyors
0-1 CHEMISTS, PHYSICISTS, GEOLOGISTS AND OTHER PHYSICAL SCIENTISTS	
0-11 Chemists	0-11 Chemists
Except:	
Chemist (biological) (0-11.20)	[*Included in 0-52*]
0-12 Physicists	0-12 Physicists
0-19 Physical scientists N.E.C.	0-13 Physical scientists N.E.C.
0-2 BIOLOGISTS, VETERINARIANS, AGRONOMISTS AND RELATED SCIENTISTS	
0-21 Veterinarians	0-65 Veterinarians
0-22 Biologists and animal scientists N.E.C.	0-51 Biologists, zoologists and related scientists 0-52† Bacteriologists, pharmacologists and related scientists
0-23 Agronomists, silviculturists and horticultural scientists	0-53 Agronomists and related scientists
Except:	
Landscape planner (0-23.60)	[*Included in 0-21*]
Wood technologist	[*Included in 0-29*]
0-3 PHYSICIANS, SURGEONS AND DENTISTS	
0-31 Physicians and surgeons	0-61 Medical doctors
Except:	
Physiologist, medical (0-31.40)	[*Included in 0-52*]
Pathologist, medical (0-31.50)	[*Included in 0-52*]
Toxicologist (0-31.60)	[*Included in 0-52*]
0-32 Dentists	0-63 Dentists
0-4 NURSES AND MIDWIVES	
0-41 Nurses, professional	0-71 Professional nurses
0-42 Midwives	0-73 Professional midwives 0-74 Midwifery personnel N.E.C.
0-49 Nurses N.E.C.	0-72 Nursing personnel N.E.C.

ISCO 1958	REVISED ISCO
0-5 PROFESSIONAL MEDICAL WORKERS N.E.C. AND MEDICAL TECHNICIANS	
0-51 Pharmacists	0-67 Pharmacists
0-52 Optometrists	0-75† Optometrists and opticians
0-53 Medical technicians	0-76 Physiotherapists and occupational therapists 0-77 Medical X-ray technicians 0-79† Medical, dental, veterinary and related workers N.E.C.
0-59 Professional medical workers N.E.C.	0-62 Medical assistants 0-64 Dental assistants 0-69 Dietitians and public health nutritionists 0-79† Medical, dental, veterinary and related workers N.E.C.
0-6 TEACHERS	
0-61 University teachers	1-31 University and higher education teachers
0-69 Teachers N.E.C.	1-32 Secondary education teachers 1-33 Primary education teachers 1-34 Pre-primary education teachers 1-35 Special education teachers 1-39† Teachers N.E.C.
0-7 CLERGY AND RELATED MEMBERS OF RELIGIOUS ORDERS	
0-71 Clergy and related members of religious orders	1-41 Ministers of religion and related members of religious orders 1-49 Workers in religion N.E.C.
0-8 JURISTS	
0-81 Jurists	1-21 Lawyers 1-22 Judges 1-29 Jurists N.E.C.
0-9 ARTISTS, WRITERS AND RELATED WORKERS	
0-91 Painters, sculptors and related creative artists	1-61 Sculptors, painters and related artists 1-62† Commercial artists and designers
0-92 Authors, journalists and related writers	1-51 Authors and critics 1-59 Authors, journalists and related writers N.E.C.
0-93 Actors, musicians, dancers and related workers	1-71 Composers, musicians and singers 1-72 Choreographers and dancers 1-73 Actors and stage directors 1-75 Circus performers 1-79 Performing artists N.E.C.
0-X DRAUGHTSMEN AND SCIENCE AND ENGINEERING TECHNICIANS N.E.C.	
0-X1 Draughtsmen	0-32 Draughtsmen

ISCO 1958	REVISED ISCO
0-X9 Science and engineering technicians N.E.C. and laboratory attendants	0-14 Physical science technicians
	0-33† Civil engineering technicians
	0-34 Electrical and electronics engineering technicians
	0-35 Mechanical engineering technicians
	0-36 Chemical engineering technicians
	0-37 Metallurgical technicians
	0-38 Mining technicians
	0-39 Engineering technicians N.E.C.
	0-54 Life sciences technicians
	0-66 Veterinary assistants
	0-68 Pharmaceutical assistants
	0-84 Statistical and mathematical technicians
0-Y Other Professional, Technical and Related Workers	
0-Y1 Accountants, professional	1-10 Accountants
0-Y2 Social workers	1-93 Social workers
0-Y3 Librarians and archivists	1-91 Librarians, archivists and curators
0-Y4 Economists, actuaries and statisticians	0-81 Statisticians
	0-82† Mathematicians and actuaries
	0-90 Economists
0-Y9 Professional, technical and related workers N.E.C.	0-83 Systems analysts
	1-92 Sociologists, anthropologists and related scientists
	1-94 Personnel and occupational specialists
	1-95 Philologists, translators and interpreters
	1-99† Other professional, technical and related workers
Except:	
Time and motion study engineer	[*Included in 0-28*]
Quantity surveyor	[*Included in 0-33*]
Mathematician (0-Y9.35)	[*Included in 0-82*]
Education methods adviser	[*Included in 1-39*]
Audio-visual and other teaching aid specialist	[*Included in 1-39*]
School inspector	[*Included in 1-39*]
Designer (industrial and commercial products) (0-Y9.62)	[*Included in 1-62*]
Taxidermist (0-Y9.65)	[*Included in 9-49*]

Major Group 1

ISCO 1958	REVISED ISCO
1-0 Administrative and Executive Officials, Government	
1-01 Administrators and executive officials, government	2-01 Legislative officials
	2-02 Government administrators
Except:	
Executive officer, government (1-01.60)	*3-10 Government executive officials*

ISCO 1958		REVISED ISCO	
1-1	Directors, Managers and Working Proprietors		
1-11	Directors, managers and working proprietors (mining and quarrying, manufacturing, construction, electricity, gas, water and sanitary services)	2-11† 2-12† 2-19†	General managers Production managers (except farm) Managers N.E.C.
1-12	Directors and managers (wholesale and retail trade)	4-00	Managers (wholesale and retail trade)
	Except:		
	Managers of departments such as purchasing, finance, administration, etc.		*[Included in 2-19]*
1-13	Directors, managers and working proprietors (banks and other financial institutions, insurance and real estate)	2-11† 2-19†	General managers Managers N.E.C.
1-14	Directors, managers and working proprietors (transport, storage and communications)	2-11† 2-19†	General managers Managers N.E.C.
	Except:		
	Postmasters	*3-52*	*Postmasters*
1-15	Directors, managers and working proprietors (service industries)	1-74 2-11† 2-19†	Producers, performing arts General managers Managers N.E.C.
	Except:		
	Managers (catering and lodging services)	*5-00*	*Managers (catering and lodging services)*
	Working proprietors (catering and lodging services)	*5-10*	*Working proprietors (catering and lodging services)*
1-19	Directors, managers and working proprietors N.E.C.	2-11† 2-12† 2-19†	General managers Production managers (except farm) Managers N.E.C.
	Major Group 2		
2-0	Bookkeepers and Cashiers		
2-01	Bookkeepers and cashiers	3-31 3-39†	Bookkeepers and cashiers Bookkeepers, cashiers and related workers N.E.C.
2-1	Stenographers and Typists		
2-11	Stenographers and typists	3-21†	Stenographers, typists and teletypists
2-9	Other Clerical Workers		
2-91	Office-machine operators	3-22 3-41 3-42	Card- and tape-punching machine operators Bookkeeping and calculating machine operators Automatic data-processing machine operators

ISCO 1958	REVISED ISCO
Except:	
Office machine operator (reproduction processes)	*[Included in 3-99]*
2-99 Clerical workers N.E.C.	3-00 Clerical supervisors 3-39† Bookkeepers, cashiers and related workers N.E.C. 3-91 Stock clerks 3-92 Material and production planning clerks 3-93 Correspondence and reporting clerks 3-94 Receptionists and travel agency clerks 3-95 Library and filing clerks 3-99† Clerks N.E.C.
Major Group 3	
3-0 WORKING PROPRIETORS, WHOLESALE AND RETAIL TRADE	
3-01 Working proprietors, wholesale trade	4-10† Working proprietors (wholesale and retail trade)
3-02 Working proprietors, retail trade	4-10† Working proprietors (wholesale and retail trade)
3-1 INSURANCE AND REAL-ESTATE SALESMEN, SALESMEN OF SECURITIES AND SERVICES, AND AUCTIONEERS	
3-11 Insurance and real-estate salesmen, salesmen of securities and services, and auctioneers	4-41 Insurance, real estate and securities salesmen 4-42 Business services salesmen 4-43 Auctioneers
3-2 COMMERCIAL TRAVELLERS AND MANUFACTURERS' AGENTS	
3-21 Commercial travellers and manufacturers' agents	4-32 Commercial travellers and manufacturers' agents
3-3 SALESMEN, SHOP ASSISTANTS AND RELATED WORKERS	
3-31 Salesmen and shop assistants	4-51† Salesmen, shop assistants and demonstrators
3-32 Street vendors, canvassers and newsvendors	4-52 Street vendors, canvassers and newsvendors
3-39 Salesmen, shop assistants and related workers N.E.C.	4-21 Sales supervisors 4-22 Buyers 4-31 Technical salesmen and service advisers 4-90 Sales workers N.E.C.
Except:	
Petrol service station attendant (3-39.20)	*[Included in 4-51]*
Demonstrator (3-39.30)	*[Included in 4-51]*

ISCO 1958	REVISED ISCO
Major Group 4	
4-0 FARMERS AND FARM MANAGERS	
4-01 Farmers and farm managers	6-00† Farm managers and supervisors 6-11 General farmers 6-12 Specialised farmers
4-1 FARM WORKERS N.E.C.	
4-11 Farm workers N.E.C.	6-21 General farm workers 6-22 Field crop and vegetable farm workers 6-23† Orchard, vineyard and related tree and shrub crop workers 6-24 Livestock workers 6-25 Dairy farm workers 6-26 Poultry farm workers 6-27 Nursery workers and gardeners 6-28 Farm machinery operators 6-29† Agricultural and animal husbandry workers N.E.C.
Except: Farm supervisor	[*Included in 6-00*]
4-2 HUNTERS AND RELATED WORKERS	
4-21 Hunters and related workers	6-49† Fishermen, hunters and related workers N.E.C.
Except: Guide, hunting and fishing (4-21.40)	[*Included in 5-91*]
4-3 FISHERMEN AND RELATED WORKERS	
4-31 Fishermen and related workers	6-41 Fishermen 6-49† Fishermen, hunters and related workers N.E.C.
4-4 LOGGERS AND OTHER FORESTRY WORKERS	
4-41 Loggers and other forestry workers	6-31 Loggers 6-32 Forestry workers (except logging)
Except: Tree tapper (4-41.50)	[*Rubber tapper included in 6-23; other tappers in 6-29*]
Charcoal burner, forest (4-41.55)	[*Included in 7-49*]
Extractor operator, wood distillation, forest (4-41.60)	[*Included in 7-44*]
Distiller, wood turpentine, forest (4-41.65)	[*Included in 7-44*]
Distiller, gum turpentine, forest (4-41.70)	[*Included in 7-44*]

ISCO 1958	REVISED ISCO
Major Group 5	
5-0 MINERS AND QUARRYMEN	
5-01 Miners and quarrymen	7-11† Miners and quarrymen
5-1 WELL DRILLERS AND RELATED WORKERS	
5-11 Well drillers and related workers	7-13 Well drillers, borers and related workers
5-2 MINERAL TREATERS	
5-21 Mineral treaters	7-12 Mineral and stone treaters
5-9 MINERS, QUARRYMEN AND RELATED WORKERS N.E.C.	
5-99 Miners, quarrymen and related workers N.E.C.	7-11† Miners and quarrymen
Except:	
Engine driver, mine and quarry (5-99.20)	[*Included in 9-83*]
Shuttle car operator, mine (5-99.30)	[*Included in 9-79*]
Driver, animal-drawn vehicle (mine and quarry) (5-99.40)	[*Included in 9-86*]
Brakeman, mine and quarry (5-99.50)	[*Included in 9-84*]
Cageman, mine (5-99.60)	[*Included in 9-73*]
Crude-oil treater (5-99.80)	[*Included in 7-43*]
Major Group 6	
6-0 DECK OFFICERS, ENGINEER OFFICERS AND PILOTS, SHIP	
6-01 Deck officers and pilots, ship	0-42 Ships' deck officers and pilots
6-02 Engineer officers, ship	0-43 Ships' engineers
6-1 DECK AND ENGINE-ROOM RATINGS (SHIP), BARGE CREWS AND BOATMEN	
6-11 Deck ratings (ship), barge crews and boatmen	9-81 Ships' deck ratings, barge crews and boatmen
6-12 Engine-room ratings, firemen and oilers, ship	9-82 Ships' engine-room ratings
Except:	
Engine mechanic (ship) (6-12.15)	[*Included in 8-49*]
6-2 AIRCRAFT PILOTS, NAVIGATORS AND FLIGHT ENGINEERS	
6-21 Aircraft pilots, navigators and flight engineers	0-41 Aircraft pilots, navigators and flight engineers

ISCO 1958	REVISED ISCO
6-3 Drivers and Firemen, Railway Engine	
6-31 Drivers and firemen, railway engine	9-83† Railway engine-drivers and firemen
6-4 Drivers, Road Transport	
6-41 Drivers of motorised vehicles	9-85 Motor-vehicle drivers
6-42 Drivers of animal and animal-drawn vehicles	9-86† Animal and animal-drawn vehicle drivers
6-43 Drivers propelling their vehicles	9-89† Transport equipment operators N.E.C.
6-5 Conductors and Brakemen, Railway	
6-51 Conductors and brakemen, railway	3-60† Transport conductors 9-84† Railway brakemen, signalmen and shunters
6-6 Inspectors, Supervisors, Traffic Controllers and Dispatchers, Transport	
6-61 Inspectors and supervisors, transport	3-51 Railway station masters 3-59† Transport and communications supervisors N.E.C.
6-62 Traffic controllers and dispatchers, transport	3-59† Transport and communications supervisors N.E.C.
Except:	
Railway signalman (6-62.40)	*[Included in 9-84]*
Railway shunter (6-62.50)	*[Included in 9-84]*
6-7 Telephone, Telegraph and Related Telecommunications Operators	
6-71 Telephone and telegraph operators	3-80† Telephone and telegraph operators
Except:	
Teleprinter operator (6-71.40)	*[Included in 3-21]*
6-72 Radio-communication operators	3-80† Telephone and telegraph operators
Except:	
Radio broadcasting station operator (6-72.15)	*[Included in 8-61]*
Television broadcasting station operator (6-72.20)	*[Included in 8-61]*
6-8 Postmen and Messengers	
6-81 Postmen	3-70† Mail distribution clerks
6-82 Messengers	3-70† Mail distribution clerks

ISCO 1958		REVISED ISCO	
6-9	WORKERS IN TRANSPORT AND COMMUNICATION OCCUPATIONS N.E.C.		
6-91	Conductors, road transport	3-60†	Transport conductors
6-92	Workers in transport occupations N.E.C.	9-89†	Transport equipment operators N.E.C.
	Except:		
	Ticket sellers on means of transport, except bus or tram		*[Included in 3-60]*
6-93	Inspectors, traffic controllers and dispatchers, communications	3-59†	Transport and communications supervisors N.E.C.
6-94	Workers in communication occupations N.E.C.	3-80†	Telephone and telegraph operators

Major Group 7/8

ISCO 1958		REVISED ISCO	
7-0	SPINNERS, WEAVERS, KNITTERS, DYERS AND RELATED WORKERS		
7-01	Fibre preparers	7-51	Fibre preparers
7-02	Spinners and winders, textile	7-52	Spinners and winders
7-03	Weavers, loom fixers and loom preparers	7-53† 7-54†	Weaving- and knitting-machine setters and pattern-card preparers Weavers and related workers
7-04	Knitters and knitting-machine setters	7-53† 7-55	Weaving- and knitting-machine setters and pattern-card preparers Knitters
7-05	Pattern-card preparers	7-53†	Weaving- and knitting-machine setters and pattern-card preparers
7-06	Bleachers, dyers and finishers of textiles	7-56†	Bleachers, dyers and textile product finishers
7-09	Textile fabric and related product makers N.E.C.	7-59	Spinners, weavers, knitters, dyers and related workers N.E.C.
	Except:		
	Examiner, fabrics (7-09.15)		*[Included in 7-54]*
	Repairer, fabrics (7-09.20)		*[Included in 7-54]*
7-1	TAILORS, CUTTERS, FURRIERS AND RELATED WORKERS		
7-11	Tailors, dressmakers and garment makers	7-91	Tailors and dressmakers
7-12	Fur tailors and related workers	7-92	Fur tailors and related workers
7-13	Milliners and hatmakers	7-93†	Milliners and hatmakers
7-14	Upholsterers and related workers	7-96	Upholsterers and related workers

ISCO 1958		REVISED ISCO	
7-15	Patternmakers, markers and cutters (textile products, leather garments and gloves)	7-94	Patternmakers and cutters
7-16	Sewers and embroiderers (textile and fur products, leather garments and gloves)	7-95	Sewers and embroiderers
7-19	Apparel and related product makers, N.E.C.	7-99	Tailors, dressmakers, sewers, upholsterers and related workers N.E.C.
	Except:		
	Hat-blocking-machine operator		[*Included in 7-93*]
7-2	LEATHER CUTTERS, LASTERS AND SEWERS (EXCEPT GLOVES AND GARMENTS) AND RELATED WORKERS		
7-21	Shoemakers and shoe repairers	8-01	Shoemakers and shoe repairers
7-22	Cutters, lasters, sewers (footwear) and related workers	8-02	Shoe cutters, lasters, sewers and related workers
7-23	Harness and saddle makers	8-03†	Leather goods makers
7-29	Leather-product makers N.E.C.	8-03†	Leather goods makers
7-3	FURNACEMEN, ROLLERS, DRAWERS, MOULDERS AND RELATED METAL MAKING AND TREATING WORKERS		
7-31	Furnacemen, metal	7-21 7-23	Metal smelting, converting and refining furnacemen Metal melters and reheaters
7-32	Annealers, temperers and related heat treaters	7-26	Metal annealers, temperers and case-hardeners
	Except:		
	Bluer, metal (7-32.60)		[*Included in 7-29*]
7-33	Rolling-mill operators, metal	7-22	Metal rolling-mill workers
7-34	Blacksmiths, hammersmiths and forgemen	8-31	Blacksmiths, hammersmiths and forging-press operators
7-35	Moulders and coremakers	7-24 7-25	Metal casters Metal moulders and coremakers
7-36	Metal drawers and extruders	7-27	Metal drawers and extruders
7-39	Metal making and treating workers N.E.C.	7-29†	Metal processers N.E.C.
7-4	PRECISION-INSTRUMENT MAKERS, WATCHMAKERS, JEWELLERS AND RELATED WORKERS		
7-41	Precision-instrument makers, watch and clock makers and repairmen	8-42	Watch, clock and precision-instrument makers
	Except:		
	Optician (7-41.35)		[*Included in 0-75*]
	Office machines mechanic		[*Included in 8-49*]

ISCO 1958		REVISED ISCO	
7-42	Jewellers, goldsmiths and silversmiths	8-80†	Jewellery and precious metal workers
7-43	Jewellery engravers	8-80†	Jewellery and precious metal workers
7-5	TOOLMAKERS, MACHINISTS, PLUMBERS, WELDERS, PLATERS AND RELATED WORKERS		
7-50	Fitter-machinists, toolmakers and machine-tool setters	8-32	Toolmakers, metal pattern makers and metal markers
		8-33	Machine-tool setter-operators
7-51	Machine-tool operators	8-34†	Machine-tool operators
7-52	Fitter-assemblers and machine erectors (except electrical and precision-instrument fitter-assemblers)	8-41	Machinery fitters and machine assemblers
7-53	Mechanics-repairmen (except electrical and precision instrument repairmen)	8-43	Motor-vehicle mechanics
		8-44	Aircraft engine mechanics
		8-49†	Machinery fitters, machine assemblers and precision-instrument makers (except electrical) N.E.C.
7-54	Sheet-metal workers	8-73†	Sheet-metal workers
7-55	Plumbers and pipe fitters	8-71	Plumbers and pipe fitters
	Except:		
	Lead burner (7-55.80)		[*Included in 8-72*]
7-56	Welders and flame cutters	8-72†	Welders and flame-cutters
	Except:		
	Metal sprayer (7-56.65)		[*Included in 7-28*]
7-57	Metal-plate and structural-metal workers	8-74	Structural metal preparers and erectors
	Except:		
	Boilermaker (7-57.40)		[*Included in 8-73*]
	Reinforcing-iron worker, construction (7-57.80)		[*Included in 9-52*]
7-58	Electroplaters, dip platers and related workers	7-28†	Metal platers and coaters
7-59	Metal workers N.E.C.	8-35	Metal grinders, polishers and tool sharpeners
		8-39	Blacksmiths, toolmakers and machine-tool operators N.E.C.
	Except:		
	Metal sawing machine operator (7-59.40)		[*Included in 8-34*]
	Assembler, metal products (7-59.25)		[*Included in 8-49*]
	Solderer, hand (7-59.70)		[*Included in 8-72*]
7-6	ELECTRICIANS AND RELATED ELECTRIC AND ELECTRONICS WORKERS		
7-61	Electricians, electrical repairmen and related electrical workers	8-55	Electrical wiremen

ISCO 1958	REVISED ISCO
Except:	
Electrical load dispatcher, power station (7-61.50)	*[Included in 9-61]*
Electrical switchboard operator, power station (7-61.55)	*[Included in 9-61]*
7-62 Electrical and electronics fitters	8-51 Electrical fitters 8-52 Electronics fitters
7-63 Mechanics-repairmen, radio and television	8-54 Radio and television repairmen
7-64 Installers and repairmen, telephone and telegraph	8-56 Telephone and telegraph installers
7-65 Linemen and cable jointers	8-57 Electric linemen and cable jointers
7-69 Electrical and electronics workers N.E.C.	8-53† Electrical and electronic equipment assemblers 8-59 Electrical fitters and related electrical and electronics workers N.E.C. 8-62 Sound-equipment operators and cinema projectionists
7-7 CARPENTERS, JOINERS, CABINET MAKERS, COOPERS AND RELATED WORKERS	
7-71 Carpenters and joiners	9-54 Carpenters, joiners and parquetry workers
Except:	
Roofer (wooden shingles) (7-71.55)	*[Included in 9-53]*
7-72 Cabinet makers	8-11 Cabinetmakers
7-73 Sawyers and woodworking-machine setters and operators	7-32† Sawyers, plywood makers and related wood-processing workers 8-12† Woodworking-machine operators
7-79 Woodworkers N.E.C.	7-31 Wood treaters 8-19 Cabinetmakers and related woodworkers N.E.C.
Except:	
Grader, wood (7-79.30)	*[Included in 7-32]*
Turner, wood (7-79.55)	*[Included in 8-12]*
7-8 PAINTERS AND PAPERHANGERS	
7-81 Painters and paperhangers, construction and maintenance	9-31 Painters, construction
Except:	
Painter (sign) (7-81.40)	*[Included in 9-39]*
Paperhanger (7-81.50)	*[Included in 9-59]*
7-82 Painters (except construction and maintenance)	9-39† Painters N.E.C.
7-9 BRICKLAYERS, PLASTERERS AND CONSTRUCTION WORKERS N.E.C.	
7-91 Bricklayers, stonemasons and tile setters	9-51† Bricklayers, stonemasons and tile setters

ISCO 1958		REVISED ISCO	
7-92	Plasterers	9-55	Plasterers
7-93	Cement finishers and terrazzo workers	9-52†	Reinforced concreters, cement finishers and terrazzo workers
7-94	Insulation appliers	9-56	Insulators
7-95	Glaziers	9-57	Glaziers
7-99	Construction workers N.E.C.	9-53† 9-59†	Roofers Construction workers N.E.C.
	Except: Paver (7-99.65)		*[Included in 9-51]*
8-0	COMPOSITORS, PRESSMEN, ENGRAVERS, BOOKBINDERS AND RELATED WORKERS		
8-01	Compositors and type-setters	9-21	Compositors and type-setters
8-02	Pressmen, printing	9-22	Printing pressmen
	Except: Pressman (textile printing) (8-02.80)		*[Included in 9-29]*
8-03	Stereotypers and electrotypers	9-23	Stereotypers and electrotypers
8-04	Engravers, printing (except photo-engravers)	9-24	Printing engravers (except photo-engravers)
8-05	Photo-engravers	9-25	Photo-engravers
8-06	Bookbinders and related workers	9-26	Bookbinders and related workers
8-09	Printing workers N.E.C.	9-29†	Printers and related workers N.E.C.
8-1	POTTERS, KILNMEN, GLASS AND CLAY FORMERS AND RELATED WORKERS		
8-11	Glass formers, cutters, grinders and finishers	8-91	Glass formers, cutters, grinders and finishers
8-12	Potters and related clay and abrasive formers	8-92	Potters and related clay and abrasive formers
8-13	Furnacemen and kilnmen, glass and ceramics	8-93	Glass and ceramics kilnmen
	Except: Glass mixer		*[Included in 8-99]*
8-14	Decorators, glass and ceramics	8-94 8-95	Glass engravers and etchers Glass and ceramics painters and decorators
8-19	Glass and ceramics workers N.E.C.	8-99†	Glass formers, potters and related workers N.E.C.
8-2	MILLERS, GRAIN AND RELATED PRODUCTS		
8-21	Millers, grain and related products	7-71	Grain millers and related workers
	Except: Miller (oil seed) (8-21.50)		*[Included in 7-79]*

ISCO 1958		REVISED ISCO	
8-22	Bakers and pastrycooks	7-76†	Bakers, pastrycooks and confectionery makers
8-23	Sugar and chocolate confectionery makers	7-76†	Bakers, pastrycooks and confectionery makers
8-24	Brewers, winemakers and related workers	7-78†	Brewers, wine and beverage makers
	Except:		
	Brewmaster (8-24.15)	[*Included in 7-00*]	
8-25	Curers, freezers, cooks and related canners and preservers	7-74	Food preservers
8-26	Butchers and meat cutters	7-73	Butchers and meat preparers
8-27	Dairy workers	7-75	Dairy product processers
8-29	Food processers N.E.C.	7-77	Tea, coffee and cocoa preparers
		7-79†	Food and beverage processers N.E.C.
	Except:		
	Macaroni maker (8-29.50)	[*Included in 7-76*]	
	Fruit-press operator (8-29.55)	[*Included in 7-78*]	
	Ice maker (8-29.45)	[*Included in 9-69*]	
8-3	CHEMICAL AND RELATED PROCESS WORKERS		
8-31	Batch- and continuous-still operators	7-44†	Still and reactor operators
	Except:		
	Stillman, petroleum (8-31.40)	[*Included in 7-45*]	
8-32	Cookers, roasters and other heat treaters, chemical and related processes	7-42	Cookers, roasters and related heat-treaters
	Except:		
	Evaporator operator (8-32.25)	[*Included in 7-44*]	
	Coke burner (8-32.50)	[*Included in 7-49*]	
	Coal-gas maker (8-32.55)	[*Included in 7-49*]	
8-33	Crushers, millers and calenderers, chemical and related processers	7-41†	Crushers, grinders and mixers
	Except:		
	Millman, rubber (8-33.40)	[*Included in 9-01*]	
	Calender-machine operator, rubber (8-33.60)	[*Included in 9-01*]	
	Calender-machine operator, textile (8-33.50)	[*Included in 7-56*]	
	Crusher-grinder, sugar-cane	[*Included in 7-72*]	
8-34	Paper-pulp preparers	7-33	Paper pulp preparers
8-35	Paper makers	7-34	Paper makers
8-39	Chemical and related process workers N.E.C.	7-43†	Filter and separator operators
		7-45†	Petroleum-refining workers
		7-72†	Sugar processers and refiners
		7-49†	Chemical processers and related workers N.E.C.

ISCO 1958		REVISED ISCO	
	Except:		
	Reactor-convertor operator (except petroleum)		*[Included in 7-44]*
	Mixing-machine operator (chemical and related processes)		*[Included in 7-41]*
8-4	**TOBACCO PREPARERS AND TOBACCO-PRODUCT MAKERS**		
8-41	Tobacco preparers	7-81	Tobacco preparers
8-42	Cigar makers	7-82	Cigar makers
8-43	Cigarette makers	7-83	Cigarette makers
8-49	Tobacco-product makers N.E.C.	7-89	Tobacco preparers and tobacco product makers N.E.C.
8-5	**CRAFTSMEN AND PRODUCTION-PROCESS WORKERS N.E.C.**		
8-51	Basketry weavers and related workers	9-42†	Basketry weavers and brush makers
8-52	Tire builders, vulcanisers and related rubber-product makers	9-01† 9-02	Rubber and plastics product makers (except tire makers and tire vulcanisers) Tire makers and vulcanisers
8-53	Plastics-product makers	9-01†	Rubber and plastics product makers (except tire makers and tire vulcanisers)
8-54	Tanners, fellmongers, pelt dressers and related workers	7-61 7-62	Tanners and fellmongers Pelt dressers
8-55	Photographic dark-room workers	9-27	Photographic dark-room workers
8-56	Makers of musical instruments and related workers	9-41	Musical instrument makers and tuners
8-57	Stone cutters and carvers	8-20	Stone cutters and carvers
8-58	Paper-product makers	9-10	Paper and paperboard products makers
8-59	Miscellaneous craftsmen and production-process workers N.E.C.	9-43 9-49†	Non-metallic mineral product makers Other production and related workers
	Except:		
	Broom maker (8-59.30)		*[Included in 9-42]*
	Brush maker, hand (8-59.35)		*[Included in 9-42]*
	Coil winder, machine (8-59.83)		*[Included in 8-53]*
	Coil winder, hand (8-59.86)		*[Included in 8-53]*
8-6	**PACKERS, LABELLERS AND RELATED WORKERS**		
8-61	Packers, labellers and related workers		*[Included in 9-71]*

ISCO 1958		REVISED ISCO	
8-7	STATIONARY-ENGINE AND EXCAVATING AND LIFTING EQUIPMENT OPERATORS AND RELATED WORKERS		
8-71	Operators of stationary engines and related equipment and boiler firemen	9-61† 9-69†	Power-generating machinery operators Stationary engine and related equipment operators N.E.C.
8-72	Crane and hoist operators	9-73†	Crane and hoist operators
8-73	Riggers and cable splicers	9-72	Riggers and cable splicers
8-74	Earth-moving and related machinery operators	9-74	Earth-moving and related machinery operators
8-75	Material-handling-equipment operators	9-79†	Material handling equipment operators N.E.C.
8-76	Oilers and greasers (stationary engines, motor vehicles and related equipment)		[*Included in 8-49*]
8-8	LONGSHOREMEN AND RELATED FREIGHT HANDLERS		
8-81	Longshoremen and related freight handlers	9-71†	Dockers and freight handlers
8-9	LABOURERS N.E.C.		
8-99	Labourers N.E.C.	9-99	Labourers N.E.C.
(-)	[VARIOUS MINOR GROUPS]		
(-)	Production supervisors and general foremen [1]	7-00	Production supervisors and general foremen

Major Group 9

ISCO 1958		REVISED ISCO	
9-0	FIRE FIGHTERS, POLICEMEN, GUARDS AND RELATED WORKERS		
9-01	Fire-fighters and related workers	5-81	Fire-fighters
9-02	Policemen and detectives	5-82	Policemen and detectives
9-09	Guards and related workers N.E.C.	5-89	Protective service workers N.E.C.
9-1	HOUSEKEEPERS, COOKS, MAIDS AND RELATED WORKERS		
9-11	Housekeepers, housekeeping stewards and matrons	5-20	Housekeeping and related service supervisors
9-12	Cooks	5-31	Cooks

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[1] These workers are classified according to ISCO 1958 in the different residual and other unit groups which refer to the general type of work supervised.

ISCO 1958		REVISED ISCO	
9-19	Maids, valets and related service workers N.E.C.	5-40†	Maids and related housekeeping service workers N.E.C.
	Except: Air hostess (9-19.85)		[*Included in 5-99*]
9-2	WAITERS, BARTENDERS AND RELATED WORKERS		
9-21	Waiters, bartenders and related workers	5-32	Waiters, bartenders and related workers
9-3	BUILDING CARETAKERS, CLEANERS AND RELATED WORKERS		
9-31	Building caretakers	5-51	Building caretakers
9-32	Charworkers, cleaners and related workers	5-52	Charworkers, cleaners and related workers
9-4	BARBERS, HAIRDRESSERS, BEAUTICIANS AND RELATED WORKERS		
9-41	Barbers, hairdressers, beauticians and related workers	5-70	Hairdressers, barbers, beauticians and related workers
9-5	LAUNDERERS, DRY CLEANERS AND PRESSERS		
9-51	Launderers, dry cleaners and pressers	5-60	Launderers, dry-cleaners and pressers
9-6	ATHLETES, SPORTSMEN AND RELATED WORKERS		
9-61	Athletes, sportsmen and related workers	1-80	Athletes, sportsmen and related workers
9-7	PHOTOGRAPHERS AND RELATED CAMERA OPERATORS		
9-71	Photographers and related camera operators	1-63	Photographers and cameramen
9-8	EMBALMERS AND UNDERTAKERS		
9-81	Embalmers and undertakers	5-92	Undertakers and embalmers
9-9	SERVICE, SPORT AND RECREATION WORKERS N.E.C.		
9-99	Service, sport and recreation workers N.E.C.	5-91† 5-99†	Guides Other service workers
	Except:		
	Companion (9-99.20)		[*Included in 5-40*]
	Wardrobe mistress, stage and studio (9-99.40)		[*Included in 5-40*]
	Mannequin (9-99.30)		[*Included in 4-51*]

ISCO 1958	REVISED ISCO
Major Group X	
X-1 NEW WORKERS SEEKING EMPLOYMENT	X-1 NEW WORKERS SEEKING EMPLOYMENT
X-19 New workers seeking employment	X-10 New workers seeking employment
X-2 WORKERS REPORTING OCCUPATIONS UNIDENTIFIABLE OR INADEQUATELY DESCRIBED	X-2 WORKERS REPORTING OCCUPATIONS UNIDENTIFIABLE OR INADEQUATELY DESCRIBED
X-29 Workers reporting occupations unidentifiable or inadequately described	X-20 Workers reporting occupations unidentifiable or inadequately described
X-3 WORKERS NOT REPORTING ANY OCCUPATION	X-3 WORKERS NOT REPORTING ANY OCCUPATION
X-39 Workers not reporting any occupation	X-30 Workers not reporting any occupation
Armed Forces	
ARMED FORCES	ARMED FORCES

EXPANDED ALPHABETICAL LIST OF TITLES

This index shows in alphabetical sequence the following items:

(a) titles of the International Standard Classification of Occupations together with corresponding code numbers, as given in preceding pages (see Classified List of ISCO Titles and Codes). For each of these titles a definition appears in the earlier part of this volume. Minor group titles appear in heavy type, unit group titles in large and small capitals. Titles of ISCO terminating with the words "Not Elsewhere Classified" and those beginning with the word "Other" have been omitted since they would not add to the usefulness of the Expanded List;

(b) titles which are inversions of the above and thus give the same reference in another part of the alphabetical sequence;

(c) additional titles, identified by an asterisk. These have been inserted to facilitate the task of the user of ISCO in finding out where different occupations have been classified in the ISCO system. They do not constitute formal ISCO titles.

Where words are repeated in successive entries in the Expanded List, the first two words (not counting words such as "and", "in" and "of") are replaced by dashes. Words hyphenated count as one word.

In different countries the same occupational terms frequently are used to refer to different occupational specialisations. Users of ISCO should therefore verify that an occupational title given in the Expanded List is consistent, in their country, with the type of work described in the ISCO definition bearing the same code number.

A

Able seaman, 9-81.30
Abrasive wheel moulder, 8-92.60
*Abrasive-coated cloth and paper maker, 9-43.90
Abrasives mixer, 8-99.60
Accordion maker, 9-41.50
*— tuner, 9-41.80
Account executive, advertising, 1-99.40
*Accountancy teacher (third level), 1-31.45
Accountant (general), 1-10.10
*—, audit, 1-10.20
*—, cost, 1-10.90
ACCOUNTANTS, 1-10
*Accounting manager, 2-19.50
*Accounting- and calculating-machine mechanic, 8-49.65
*Accounting-machine operator, 3-41.20
*Accounts clerk, 3-31.20
*— payable (or receivable) bookkeeper, 3-31.20
*— section supervisor, 3-00.90
*Acid polisher (glass decorating), 8-94.90
Acidiser (oil and gas wells), 7-13.70
Acoustical insulator, 9-56.40
*Acoustics physicist, 0-12.50
*Acquisitions clerk, library, 3-95.20
Acrobat, 1-75.40
Actor, 1-73.20
ACTORS AND STAGE DIRECTORS, 1-73
Actuary, 0-82.50
*Adding-machine operator, 3-41.30
*Address-list clerk, 3-93.90
*Addressing-machine operator, 3-99.50
*Adjustment clerk, 3-39.40
*— —, insurance, 3-93.50
Administration manager, 2-19.40
Administrator, government, 2-02.10
*Advertisement painter, signwriting, 9-39.50
Advertising account executive, 1-99.40
— copywriter, 1-59.50
*— illustrator, 1-62.20
*— manager, 2-19.90
*— photographer, 1-63.30
— salesman, 4-42.30
*— teacher (third level), 1-31.90
*Advocate, 1-21.10
*Aerial erector (radio and television), 8-54.90
*— photographer, 1-63.90
*— ropeway operator, 9-79.90
Aerialist, 1-75.50
*Aero mechanic (general), 8-44.10
Aerodrome construction engineer, 0-22.35
*Aerodynamicist, 0-12.20
*Aerographing decorator, ceramics, 8.95-50

Aeronautical engineer, 0-24.60
— engineering technician, 0-35.30
*Afforestation worker, 6-32.30
*After-sales service adviser, technical, 4-31.30
*Agricultural adviser, 0-53.60
Agricultural and animal husbandry workers, 6-2
*Agricultural bacteriologist, 0-52.50
*— economist, 0-90.20
— engineer, 0-29.30
*— engineering technician, 0-39.90
*— implement smith, 8-31.10
— machinery fitter-assembler, 8-41.60
— machinery mechanic, 8-49.55
*— machinery operator, 6-28.20
— science teacher (second level), 1-32.70
— — teacher (third level), 1-31.60
*— scientist, 0-53.20
*— statistician, 0-81.30
Agronomist, 0-53.20
AGRONOMISTS AND RELATED SCIENTISTS, 0-53
*Agronomy teacher (third level), 1-31.60
*— technician, 0-54.90
*Air hostess (aircrew), 5-99.70
*— — (ground), 3-94.90
— traffic controller, 3-59.60
— transport pilot, 0-41.20
— — service supervisor, 3-59.50
Air-compressor operator, 9-69.20
*Air-conditioning and refrigerating equipment installer and mechanic, 8-41.80
— refrigeration equipment insulator, 9-56.60
*— engineer, 0-24.80
*— engineering technician, 0-35.50
*Air-drill operator (construction), 9-74.90
Aircraft accident fire fighter, 5-81.40
Aircraft and ships' officers, 0-4
*Aircraft body builder (wood), 9-54.60
— cabin attendant, 5-99.70
*— designer, 0-24.60
*— dispatcher, 3-59.70
— electrician, 8-55.30
— engine fitter-assembler, 8-41.20
— engine mechanic (general), 8-44.10
AIRCRAFT ENGINE MECHANICS, 8-44
Aircraft engine service mechanic, 8-44.20
*— fitter-assembler (metal) 8-41.85
— joiner, 9-54.60
— loader, 9-71.35
*— mechanic (hydraulic systems), 8-44.90
— pilot (except transport), 0-41.30
AIRCRAFT PILOTS, NAVIGATORS AND FLIGHT ENGINEERS, 0-41
Aircraft pipe and tube fitter, 8-71.40
— rigger, 9-72.40
— sheet-metal worker, 8-73.80
*— stewardess, 5-99.70
*— upholsterer, 7-96.30
Airframe fitter-assembler, 8-41.85
*Airline service mechanic (engines), 8-44.20
*Alcohol distiller, 7-44.90
*Almond-grinding-machine operator, 7-79.90
*Almoner, 1-93.20
*Alpine guide, 5-91.90
*Alteration tailor, 7-91.90
*Ambassador, 2-02.10
*Ambulance driver, 9-85.90
*— man, 5-99.40
*Anaesthetist, 0-61.20
Analyst, market research, 0-90.30
Analyst, operations research, 0-82.40
Analytical chemist, 0-11.50
Anatomist, 0-52.20
ANIMAL AND ANIMAL-DRAWN VEHICLE DRIVERS, 9-86
*Animal breeder and raiser, 6-12.40
*— ecologist, 0-51.30
*— geneticist, 0-52.80
*— histologist, 0-51.30
*— husbandry teacher (third level), 1-31.60
*— keeper (zoo), 6-24.90
*— noise imitator, 1-79.90
*— pathologist, 0-52.65
*— physiologist, 0-51.30
— scientist, 0-52.80
*— skinner, 7-73.90
*— sticker, 7-73.90
*— stunner, 7-73.90
*— taxonomist, 0-51.30
Animal-drawn vehicle driver (mine and quarry), 9-86.30
— — driver (road), 9-86.20
*Animal-train driver, 9-86.90
Annealer, 7-26.20
Annealing furnaceman, glass, 8-93.30
Announcer, radio and television, 1-79.20
*Anodiser, 7-28.90
*Antenna erector (radio and television), 8-54.90
Anthropologist, 1-92.40
*Anthropology teacher (third level), 1-31.65
*Anvil smith (general), 8-31.10
Apartment house concierge, 5-51.20
*— — supervisor, 5-51.20
*Apiarist (working proprietor), 6-12.90
Apiary worker, 6-29.20
*Appeal court judge, 1-22.10
*Appeals referee (social security claims), 1-29.10
*Appliance repairman, electrical, 8-55.70
*Appointments clerk, 3-94.90
Appraiser, 4-43.30
Apprentice
See Introduction code to craft learned
*Arbitration court judge, 1-22.10
*Arboriculturist, 0-53.30
*Arc-cutting-machine operator, metal, 8-72.90
*Archaeologist, 1-92.40
*Archaeology teacher (second level), 1-32.40
*— — (third level), 1-31.65
*Archbishop, 1-41.20
Architect, buildings, 0-21.20
—, landscape, 0-21.40
*—, naval, 0-24.50
ARCHITECTS AND TOWN PLANNERS, 0-21
Architects, engineers and related technicians, 0-2/0-3
Architectural draughtsman, 0-32.50
*— photographer, 1-63.90
*Architecture teacher (third level), 1-31.25
Archivist, 1-91.30
*Armature builder, 8-51.90
*— winder (hand), 8-53.50
*— — (machine), 8-53.40
*Armorial designer, 1-62.90
*Arranger, music, 1-71.30
*Art critic, 1-51.30
— gallery and museum curator, 1-91.40
*— — guard, 5-89.40
*— — guide, 5-91.30
*— teacher (private), 1-61.30
*— — (second level), 1-32.50
*— — (third level), 1-31.90

*Art-glass setter, 9-57.50
*Artificial flower maker, 7-99.90
*— insemination technician, 0-54.90
*— inseminator (livestock), 6-24.90
*— — (poultry), 6-26.90
*— limb fitter, 0-79.50
*— — maker, 8-42.45
*— stone maker, 9-43.40
Artist, commercial, 1-62.20
*—, creative (glass and ceramics), 1-61.90
—, display, 1-62.50
—, lithographic, 0-32.80
—, painter, 1-61.30
*Artist's model, 5-99.90
Asbestos-cement product maker, 9-43.30
*Asphalt blender, 7-45.90
— roofer, 9-53.40
*Asphalt-spreading-machine operator, 9-74.60
*Assayer, 0-26.30
*Assembler and erector, prefabricated buildings, 9-59.90
—, electrical equipment, 8-53.20
*—, electronic components, 8-53.90
—, — equipment, 8-53.30
*—, hearing aids, 8-53.90
—, leather goods, 8-03.60
*—, metal products, 8-49.90
*—, photographic equipment, 8-42.40
—, plastics products, 9-01.70
*—, precision instruments, 8-42.40
—, rubber goods, 9-01.40
*Assessor (insurance), 4-43.30
*Assistant locomotive driver, 9-83.40
— railway-engine driver, 9-83.40
*Assize judge, 1-22.10
Astrologer and fortune teller, 1-99.60
Astronomical scientist 0-13.50
*Astrophysicist, 0-13.50
*Athlete, 1-80.20
ATHLETES, SPORTSMEN AND RELATED WORKERS, 1-80
*Athletic coach, 1-80.30
*Atomic physicist, 0-12.80
*Attorney, 1-21.10
*Auction clerk, 3-31.90
Auctioneer, 4-43.20
AUCTIONEERS, 4-43
*Audio operator, radio and television broadcasting, 8-61.30
*Audio-visual aid specialist, teaching, 1-39.30
— and other teaching aid specialist, 1-39.30
*Audiometric technician, 0-79.90
*Audit clerk, 3-31.90
Auditor, 1-10.20
Author, 1-51.20
AUTHORS AND CRITICS, 1-51
Authors, journalists and related writers, 1-5
*Auto-body repairer, 8-73.70
*Autoclave operator (chemical and related processes), 7-42.90
*— — (foodstuffs), 7-74.20
*— — (oils and fats), 7-79.30
AUTOMATIC DATA-PROCESSING MACHINE OPERATORS, 3-42
Automatic transfer-machine operator, 8-34.80
*Automobile engineer, 0-24.70
— mechanic, 8-43.20
— painter, 9-39.60
*— painter (motor-vehicle assembly), 9-39.90
*Automobile upholsterer, 7-96.30
Automotive engineering technician, 0-35.40
Auxiliary midwife, 0-74.10
— nurse, 0-72.10
*Aviary keeper (working proprietor), 6-12.90
*Awning maker, 7-99.20
*Axminster weaver, 7-54.60

B

Back-end machine operator (paper making), 7-34.30
*Back-up man (pipeline construction), 9-59.50
*Bacon curer, 7-74.50
Bacteriologist, 0-52.50
BACTERIOLOGISTS, PHARMACOLOGISTS AND RELATED SCIENTISTS, 0-52
*Bag-making-machine operator, cellophane, 9-10.80
*— —, paper, 9-10.70
*Baggage porter (except hotel), 9-71.90
*— — (hotel), 5-99.90
*Bagger (hand), 9-71.50
*— (machine), 9-71.55
*Bailiff, 5-89.90
*Baker, biscuit, 7-76.90
—, bread, 7-76.20
—, general, 7-76.10
*—, pastry, 7-76.30
BAKERS, PASTRYCOOKS AND CONFECTIONERY MAKERS, 7-76
*Balancer, scale, 8-42.30
Bale-press operator, 9-71.70
*Baler operator (farm), 6-28.20
*Ballast man (railway), 9-99.10
*Baller (thread and yarn), 7-52.90
*Ballet arranger, 1-72.20
*— dancer, 1-72.30
*Ballistician, 0-12.20
*Ballroom dancer, 1-72.30
*Band wind-instrument maker (metal), 9-41.40
*Band leader, 1-71.35
Band-saw operator, 7-32.30
*Band-sawyer (precision), 8-12.20
*Bander, ceramics decorating, 8-95.90
*Bandmaster, 1-71.35
Bank teller, 3-31.40
*Banker mason (stoneworking), 8-20.20
*Banksman, mine, 9-73.45
*Banquet waiter, 5-32.30
*Bar extruder operator (metal), 7-27.50
*— mill roller, 7-22.20
Barber-hairdresser, 5-70.30
*Barge builder (wood), 9-54.50
*— superintendent, 3-59.90
*Bargeman, 9-81.90
*Baritone, 1-71.45
*Barkeeper (working proprietor), 5-10.50
*Barman, 5-32.50
*Barometer maker, 8-42.30
*Barrel maker, 8-19.30
*Barrister, 1-21.10
*Barrister's clerk, 3-93.40
Bartender, 5-32.50
*Bascule-bridge operator, 9-73.55
Basket maker, 9-42.20
*Basket-furniture maker, 9-42.50
BASKETRY WEAVERS AND BRUSH MAKERS, 9-42
*Bass singer, 1-71.45
Batch-still operator (chemical processes, except petroleum), 7-44.20

Bath attendant, 5-70.70
*Battery poultryman (working proprietor), 6-12.60
*Beach guard, 5-89.90
*Bead builder, tire-making, 9-02.90
Beam warper, 7-54.15
*Beamer helper, 7-54.90
*Beater (game), 6-49.90
— operator (paper pulp), 7-33.60
Beautician, 5-70.40
*Bedder, pottery and porcelain, 8-93.90
*Bedding maker, 7-96.90
Beef cattle farm worker, 6-24.20
*Beekeeping worker, 6-29.20
*Bellboy, 5-99.90
*Bellows maker, organ, 9-41.60
*Bellyman, piano-making, 9-41.70
Bench carpenter, 9-54.70
*— joiner, 9-54.70
— moulder (metal), 7-25.20
*Bender and turner, ship frame, 8-74.90
—, glass tube, 8-91.80
*—, metal plate, 8-74.90
*—, wood, 8-19.90
*Bending-machine operator, paper-box, 9-10.50
*Bending-press operator, metal, 8-39.70
*Berthing man, dock, 9-89.90
*Bespoke shoemaker, 8-01.10
*— tailor, 7-91.20
Bessemer furnaceman (steel converting), 7-21.50
*Beveller, glass, 8-91.64
*Bicycle repairman, 8-49.75
*Bill clerk, 3-39.90
*Billboard erector, 9-54.90
*Billet mill roller, 7-22.20
*Billiards player and teacher, 1-80.90
*Billposter, 5-99.90
Biochemist, 0-52.30
*Biographer, 1-51.20
Biological technician, 0-54.20
Biologist (general), 0-51.10
*—, fresh-water, 0-51.90
*—, marine, 0-51.90
BIOLOGISTS, ZOOLOGISTS AND RELATED SCIENTISTS, 0-51
*Biology teacher (second level), 1-32.30
*— — (third level), 1-31.30
*Biometrician, 0-81.30
*Biophysicist, 0-52.90
*Biostatistician, 0-81.30
*Biscuit maker, 7-76.90
*— placer (ceramics), 8-93.90
*Biscuit-kiln fireman (pottery and porcelain), 8-93.50
*— fireman (tile), 8-93.60
*Bishop, 1-41.20
*Bituminous *paving-machine operator, 9-74.60
Black-and-white developer, 9-27.30
Blacksmith (general), 8-31.10
*Blacksmith's striker, 8-31.90
BLACKSMITHS, HAMMERSMITHS AND FORGING-PRESS OPERATORS, 8-31
Blacksmiths, toolmakers and machine-tool operators, 8-3
*Blancher (nuts), 7-79.90
Blast furnaceman (ore smelting), 7-21.20
*Blaster (mine and quarry), 7-11.50
Bleacher operator (paper making), 7-33.50
— —, chemicals, 7-49.15
—, textile, 7-56.15
BLEACHERS, DYERS AND TEXTILE PRODUCT FINISHERS, 7-56
Blender (petroleum refining), 7-45.60
*—, asphalt, 7-45.90
—, coffee, 7-77.30
*—, fibre, 7-51.25
*—, snuff, 7-89.20
—, tea, 7-77.40
—, tobacco, 7-81.30
*—, wine, 7-78.90
*Blending-machine operator (chemical and related processes), 7-41.40
*— — (textile fibres), 7-51.25
Blind, teacher of the, 1-35.20
*Block chopper, 7-12.20
*— engraver, printing (wood, rubber or linoleum), 9-24.30
— printer, 9-29.40
*Blocker, hat, 7-93.30
*Blood-bank technician, 0-54.30
*Blooming-mill roller, 7-22.20
*Blouse maker (throughout), 7-91.90
*Blowing-machine operator, fur fibre treating, 7-59.45
*Blubber stripper, 6-49.40
Bluer, metal, 7-29.20
*Boarding-house manager, 5-00.90
*Boat dispatcher, 3-59.90
*— loader (except liquids and gases), 9-71.20
— loader (liquids and gases), 9-71.40
Boatbuilder, wooden, 9-54.50
*Boatman, 9-81.90
Boatswain, 9-81.20
*Bobbin stripper, 7-54.90
*Body builder, aircraft (wood), 9-54.60
— —, coach (wood), 8-19.20
*— repairman, vehicles, 8-73.70
*Bodyguard, 5-89.90
*Boiler (chemical and related processes), 7-42.20
*— (sugar confectionery), 7-76.60
— and pipe insulator, 9-56.50
— fireman, 9-69.30
*Boilermaker, 8-73.50
*Boilerman (paper pulp making), 7-33.40
Boilersmith, 8-73.50
*Bolt header, 8-39.90
*Bond clerk, 3-39.40
*— salesman, 4-41.40
*Bone carver, 9-49.90
*Boner, fish, 7-79.40
*—, meat, 7-73.90
*Bonus clerk (payroll), 3-39.30
*Book critic, 1-51.30
— editor, 1-59.45
— embosser (hand), 9-26.40
— embosser (machine), 9-26.50
*— finisher, 9-26.40
*— illustrator, 1-62.20
*Book-loan clerk, 3-95.20
*Book-sewing-machine operator, 9-26.30
Bookbinder (hand), 9-26.20
— (machine), 9-26.30
BOOKBINDERS AND RELATED WORKERS, 9-26
*Booking clerk, travel agency, 3-94.40
*Booking-office cashier, 3-31.60
Bookkeeper (general), 3-31.10
*—, accounts payable (or receivable), 3-31.20
*—, discount, 3-31.20
BOOKKEEPERS AND CASHIERS, 3-31
Bookkeepers, cashiers and related workers, 3-3

BOOKKEEPING AND CALCULATING MACHINE OPERATORS, 3-41
Bookkeeping clerk, 3-31.20
— machine operator, 3-41.20
Bookmaker (sport), 5-99.20
*Bookmaker's clerk, 3-31.90
*Borer, well (except oil and gas), 7-13.80
Boring-machine operator, 8-34.50
*— — (woodworking), 8-12.90
— setter-operator, 8-33.50
Botanist, 0-51.20
*Botany teacher (second level), 1-32.30
*— — (third level), 1-31.30
*Bottle sorter, 9-99.10
*— washer (machine), 9-71.55
*Bottle-making machine operator, 8-91.28
*Bottler (hand), 9-71.50
*— (machine), 9-71.55
*Bottom polisher, 8-02.55
*— scourer, 8-02.55
*— stainer, 8-02.55
Box maker, paper (hand), 9-10.20
*Box-making machine operator (paper boxes), 9-10.30
*Box-office cashier, 3-31.60
*Boxer (hand packing), 9-71.50
*Boxer (machine), 9-71.55
*Boxer (professional sport), 1-80.20
*Brace maker (orthopaedic), 8-42.45
*Bracer (construction), 9-59.90
Braid maker (hand), 7-59.20
— — (machine), 7-59.25
*Braille duplicating-machine operator, 9-22.90
*— machine operator (plate preparer), 9-21.90
*Brake repairman, 8-43.90
Brakeman, mine and quarry, 9-84.50
—, railway (freight train), 9-84.20
*—, — yard, 9-84.40
*Brander, goods (machine), 9-71.60
*Brass band musical instrument maker, 9-41.40
Brazer, 8-72.45
*—, flame, 8-72.45
*—, induction, 8-72.45
Bread baker, 7-76.20
Breeders
See **Farmers, 6-1**
BREWERS, WINE AND BEVERAGE MAKERS, 7-78
*Brewery technologist, 0-29.40
*Brewmaster, 7-00.65
Brick and tile kilnman, 8-93.60
— — moulder (hand), 8-92.40
Bricklayer (chimney building), 9-51.25
— (construction), 9-51.20
*—, firebrick, 9-51.30
Bricklayers, carpenters and other construction workers, 9-5
BRICKLAYERS, STONEMASONS AND TILE SETTERS, 9-51
*Bricklaying, teacher of, 1-32.80
*Bridge cable worker, 9-72.60
— construction engineer, 0-22.45
*— operator, 9-73.55
*— player and teacher, 1-80.90
Bridge- or gantry-crane operator, 9-73.20
*Briner (foodstuffs), 7-74.50
*Briquette moulding-machine operator, 7-12.90
*Broadcasting equipment operator, radio and television studio (except sound recording), 8-61.30
*— field equipment operator, 8-61.90
Broadcasting station and sound-equipment operators and cinema projectionists, 8-6
BROADCASTING STATION OPERATORS, 8-61
*Broker, commodity (working proprietor), 4-10.20
*—, insurance, 4-41.20
*—, stocks and shares, 4-41.40
*Broker's clerk, insurance, 3-93.50
*Brokerage clerk, 3-39.40
Broom maker (hand), 9-42.40
*— — (machine), 9-42.90
Brush maker (hand), 9-42.30
*— — (machine), 9-42.90
Brush-painter (except construction), 9-39.20
*—, buildings, 9-31.20
*Bucker (logging), 6-31.20
*Budder and grafter (fruit trees), 6-23.90
*— — (nursery), 6-27.30
Budgeting and accounting manager, 2-19.50
*Buffer, metalworking (hand), 8-35.90
*—, plastics, 9-01.90
Buffing- and polishing-machine operator, 8-35.20
*Buffing-machine operator, leather, 7-61.90
Builder, house (general), 9-59.10
Building architect, 0-21.20
BUILDING CARETAKERS, 5-51
Building caretakers, charworkers, cleaners and related workers, 5-5
Building construction engineer, 0-22.20
— electrician, 8-55.20
*— electrician (maintenance), 8-55.60
— exterior cleaner, 9-59.75
— glazier, 9-57.20
— insulator (hand), 9-56.20
— — (machine), 9-56.30
— maintenance man, 9-59.20
— painter, 9-31.20
*— repairman, 9-59.20
*Bulb grower, 6-12.70
*Bulker, tobacco, 7-81.30
Bulldozer operator, 9-74.30
*— smith, 8-31.40
Burner, charcoal, 7-49.30
*—, chemical and related processes, 7-42.40
*—, coke production, 7-49.20
—, lead, 8-72.40
*Burnisher, ceramics decorating, 8-95-90
*—, metalworking (hand), 8-35.90
*—, metalworking (machine), 8-35.20
*—, uppers preparing, 8-02.30
Bus conductor, 3-60.40
*— dispatcher, 3-59.40
*— driver, 9-85.40
*— mechanic, 8-43.90
*Business efficiency expert, 0-28.10
*— intelligence archivist, 1-91.90
*— machine mechanic, 8-49.65
*— management teacher, 1-31.45
— services salesman (except advertising), 4-42.20
BUSINESS SERVICES SALESMEN, 4-42
Butcher, fish, 7-79.40
—, general, 7-73.10
*—, pork, 7-73.90
*—, retail trade, 7-73.30
BUTCHERS AND MEAT PREPARERS, 7-73
*Butler, 5-20.90
Butter maker, 7-75.30
*— moulder, 7-75.90
*Button maker, 9-49.90
Buyer, 4-22.20
BUYERS, 4-22

C

*Cab driver, 9-85.30
*Cabin steward, aircraft, 5-99.70
*— —, ship, 5-40.60
Cabinetmaker, 8-11.20
CABINETMAKERS, 8-11
Cabinetmakers and related woodworkers, 8-1
Cable and rope splicer (general), 9-72.10
*Cable car conductor, 3-60.90
*— — operator, 9-79.90
Cable driller (oil and gas wells), 7-13.40
*— jointer (electric cables), 8-57.50
*— maker, 8-39.90
*— puller (cable laying), 9-59.90
— worker, suspension bridge, 9-72.60
*Cable-ship hand, 9-81.90
*Cableman, electric power (overhead), 8-57.20
*—, — power (underground), 8-57.90
*—, — traction (overhead), 8-57.30
*—, telephone and telegraph, 8-57.40
*Cadastral surveyor, 0-31.20
*Café keeper (working proprietor), 5-10.50
*— manager, 5-00.90
*Cafeteria keeper (working proprietor), 5-10.90
*— manager, 5-00.90
*Cage driver, mine, 9-73.40
Cageman, mine, 9-73.45
*Calciner (chemical and related processes), 7-42.40
Calculating-machine operator, 3-41.30
Calender operator, rubber, 9-01.25
— —, textile, 7-56.70
*Calenderer (laundry), 5-60.90
*Calibrator, precision instruments, 8-42.30
*Camel-train driver, 9-86.90
Camera operator, motion picture, 1-63.60
— —, television, 1-63.70
*— repairman, 8-42.35
*Camera-control operator, television broadcasting, 8-61.30
Cameraman, photogravure, 9-25.20
*Camp supervisor, 5-20.90
*Camping site manager, 5-00.90
Candle maker, 9-49.60
*Cane furniture maker, 9-42.50
*Cannery hand (food preparation), 7-74.90
*Canteen assistant, 5-32.90
*— keeper (working proprietor), 5-10.90
*— manager, 5-00.90
Canvasser, 4-52.30
*Cap maker, 7-93.90
*Capper and sealer (machine), 9-71.55
*Capstan-lathe operator, metalworking, 8-34.20
*— setter-operator, 8-33.20
*Captain, aircraft (air transport), 0-41.20
*—, ship (inland waterways), 0-42.20
*—, — (sea), 0-42.15
*Car-delivery driver, 9-85.90
*Caravan park keeper (working proprietor), 5-10.90
*— — manager, 5-00.90
*Carbon-coating-machine operator (paper making), 7-34.90
Carbonation man (sugar refining), 7-72.40
*Carboniser (metal treating), 7-26.40
—, wool, 7-56.45
*Carcass splitter, 7-73.90
*— washer, 7-73.90
Card- and tape-punching machine operator, 3-22.20
CARD- AND TAPE-PUNCHING MACHINE OPERATORS, 3-22
*Card changer (textile weaving), 7-53.20
— cutter, jacquard, 7-53.50
— grinder, textile, 8-35.60
*— lacer, jacquard, 7-53.90
*Card-sorting machine operator, 3-42.30
*Card-to-tape converter operator, 3-42.90
Cardboard lining-machine operator, 9-10.40
Cardboard-press operator, 9-10.60
Carder, fibre, 7-51.35
*Carding-machine operator (textile fibres), 7-51.35
*Cardiologist, 0-61.20
*Careers adviser, 1-94.30
*Caretaker and cleaner, building, 5-51.30
*Cargo superintendent, 3-59.90
*Caricaturist, 1-61.40
*Carnation grower, 6-12.70
*Carpenter and joiner (second fixing), 9-54.20
—, bench, 9-54.70
*—, bridge and wharf, 9-54.90
—, construction, 9-54.15
*—, first fixing, 9-54.15
—, general, 9-54.10
*—, maintenance, 9-54.90
—, ship's, 9-54.55
*—, shuttering, 9-52.20
—, stage and studio, 9-54.30
CARPENTERS, JOINERS AND PARQUETRY WORKERS, 9-54
*Carpet cleaner, 5-60.90
*— maker (hand knotting), 7-99.90
— weaver (hand), 7-54.55
— — (machine), 7-54.60
Cartographical draughtsman, 0-32.60
*Carton and paper-box maker (hand), 9-10.20
*— — maker (machine), 9-10.30
Cartoonist, 1-61.40
Cartwright, 8-19.25
*Carver, ivory, plastics or bone, 9-49.90
—, stone (hand), 8-20.70
—, wood, 8-19.45
*Carving-machine operator (woodworking), 8-12.80
Case hardener, 7-26.40
*Casein worker, 7-75.90
*Caser (oil and gas wells), 7-13.90
*Caseworker, social welfare, 1-93.20
Cash desk cashier, 3-31.60
*Cash-accounting clerk, 3-31.30
Cashier, cash desk, 3-31.60
*—, change-booth, 3-39.90
*—, currency exchange, 3-31.50
—, office, 3-31.30
*Casing puller (oil and gas wells), 7-13.60
*Cask maker, 8-19.30
Cast-concrete product maker, 9-43.20
Cast-stone maker, 9-43.40
*Caster, electrotype, 9-23.30
*—, metal, 7-24.20
—, pottery and porcelain (hand), 8-92.35
*—, stereotype, 9-23.20
Casting finisher, 7-29.30
Casting-machine operator, centrifugal, 7-24.30
*— —, continuous, 7-24.90
— —, die, 7-24.40
*— —, plastic goods, 9-01.90
*— —, printing type, 9-21.40
*Casual farm worker (general), 6-21.10
*Cattle drover, 6-24.90
*— raiser, 6-12.40
*— station worker, 6-24.20
*Cellarman, 5-99.90

*Cellist, 1-71.40
Cellophane-bag maker (machine), 9-10.80
Cement finisher, 9-52.40
Cementer (oil and gas wells), 7-13.50
*Cementer (uppers preparing), 8-02.30
*Censor (government administration), 3-10.10
*Centre-lathe operator (metalworking), 8-34.20
*— setter-operator, 8-33.20
*Centreless grinding-machine operator (metalworking), 8-34.65
*— — setter-operator (metalworking), 8-33.70
Centrifugal casting-machine operator, 7-24.30
Centrifugal separator operator, 7-43.40
*Centrifuge operator (sugar refining), 7-72.90
Ceramics and glass technologist, 0-29.20
— decorator, 8-95.40
— dipper, 8-95.60
— painter, 8-95.30
— spray-painter, 8-95.50
*— technician, 0-39.90
*Chain maker, precious metal, 8-80.90
*Chain-store manager, 4-00.30
*Chainman (surveying), 9-99.10
*Chair-lift operator, 9-79.90
*Chair-side attendant, dental, 5-99.40
*Chairmaker, 8-11.90
Chambermaid, 5-40.50
*Champagne maker, 7-78.90
*Change-booth cashier, 3-39.90
*Channeller, sole, 8-02.40
*Channelling-machine operator, 7-11.20
*Chaplain, 1-41.20
*Char-kiln tender (chemical and related processes), 7-42.40
*Character actor, 1-73.20
Charcoal burner, 7-49.30
*Charge nurse, 0-71.10
*Chargeman, blasting (mine and quarry), 7-11.50
*Charger, furnace (metal melting and reheating), 7-23.90
*—, — (ore smelting and refining), 7-21.90
*Chartered accountant, 1-10.10
Charworker, 5-52.20
CHARWORKERS, CLEANERS AND RELATED WORKERS, 5-52
*Chauffeur, private motor-car, 9-85.90
*Check pilot, 0-41.60
*Check-out cashier (self-service store), 3-31.60
*Checker, quality inspection, 9-49.80
*Checkweighman, 3-91.50
Cheese maker, 7-75.40
*— moulder, 7-75.90
*— salter, 7-75.90
**Chef de cuisine*, 5-31.20
*— — *partie*, 5-31.30
Chemical bleacher operator, 7-49.15
Chemical engineer (general), 0-25.10
— — (petroleum), 0-25.20
— engineering technician (general), 0-36.10
— — technician (petroleum), 0-36.20
CHEMICAL ENGINEERING TECHNICIANS, 0-36
CHEMICAL ENGINEERS, 0-25
Chemical processer (radioactive materials), 7-49.40
Chemical processers and related workers, 7-4
*Chemical reactor operator, 7-44.40
*Chemicals cooker, 7-42.20
*— crusher operator, 7-41.20
*— miller, 7-41.30
*— mixing-machine operator, 7-41.40
*— roaster, 7-42.30
Chemist, analytical, 0-11.50
—, general, 0-11.10
—, inorganic, 0-11.30
—, organic, 0-11.20
*—, pharmaceutical, 0-11.90
—, physical, 0-11.40
*Chemistry teacher (second level), 1-32.30
*— — (third level), 1-31.20
— technician, 0-14.20
CHEMISTS, 0-11
*Chess player and teacher, 1-80.90
*Chewing-gum maker, 7-76.90
*Chicken farmer, 6-12.60
*Chief clerk, general office, 3-00.10
— engineer, ship, 0-43.15
*— justice, 1-22.10
*— steward (hotel), 5-20.40
— — (ship), 5-20.50
*Child care inspector, 1-93.90
*— welfare caseworker, 1-93.20
*Children's nurse-governess, 5-40.35
*Chimney engineer, 0-22.90
*— repairman, 9-59.30
— sweep, 5-52.40
Chipperman, 7-33.30
*Chiropodist, 0-79.90
*Chiropractics teacher, 1-31.75
Chiropractor, 0-79.30
*Chlorine-gas maker, 7-49.90
Chocolate maker, 7-76.50
*Choirmaster, 1-71.50
Choreographer, 1-72.20
CHOREOGRAPHERS AND DANCERS, 1-72
*Chorus dancer, 1-72.30
*— master, 1-71.50
*Chronometer assembler, 8-42.20
*Church janitor, 5-51.40
*Churn operator (butter making), 7-75.30
*— — (margarine), 7-79.90
Cigar maker (hand), 7-82.20
— — (machine), 7-82.30
CIGAR MAKERS, 7-82
*Cigar packer, 7-82.90
*— presser, 7-82.90
*— sorter, 7-82.90
*Cigarette maker (hand), 7-83.90
— — (machine), 7-83.20
CIGARETTE MAKERS, 7-83
*Cigarette-machine catcher, 7-83.90
Cinema projectionist, 8-62.40
*Cinematographer, 1-63.60
*Circuit judge, 1-22.10
*Circular knitter, 7-55.20
*— sawyer (precision), 8-12.20
CIRCUS PERFORMERS, 1-75
*Citrus fruit farm hand, 6-23.20
*City administrator, 2-02.10
*— editor, 1-59.25
*Civil defence officer, 3-10.10
*— engineer (aerodrome construction), 0-22.35
*— — (bridge construction), 0-22.45
*— — (building construction), 0-22.20
— — (general), 0-22.10
*— — (highway and street construction), 0-22.30
*— — (hydraulic), 0-22.55
*— — (railway construction), 0-22.40
*— — (sanitary), 0-22.50
*— — (soil mechanics), 0-22.60
*— — (tunnel construction), 0-22.90

Civil engineering draughtsman, 0-32.40
— — technician (general), 0-33.10
CIVIL ENGINEERING TECHNICIANS, 0-33
CIVIL ENGINEERS, 0-22
*Civil lawyer, 1-21.10
*— service commissioner, 2-[illegible]2.10
*— — inspector, 3-10.10
*Claims adjuster, 4-43.30
*— attorney (insurance), 1-29.10
*— clerk, insurance, 3-93.50
*— inspector, 4-43.30
*Clamp man (pipeline construction), 9-59.50
*Clarifier operator (sugar refining), 7-72.90
*—, wine, 7-78.90
*Classer, pelt, 7-62.20
*—, skin and hide, 7-61.20
*—, textile fibres, 7-51.15
*Classification clerk, 3-95.30
*Classifier (laundry), 5-60.90
Clay extruding-press operator, 8-92.55
— mixer, 8-99.30
*— pugman, 8-99.90
— slip maker, 8-99.40
*— wedger, 8-99.90
*Cleaner, aircraft, 5-52.90
—, building exteriors, 9-59.75
*—, bus, 5-52.90
*—, factory, 9-99.10
*—, flue, 5-52.40
—, metal, 7-29.40
*—, office, 5-52.20
*—, park, 9-99.10
*—, railway carriage, 5-52.90
—, window, 5-52.30
*Clearer (land), 9-99.10
*Clerical assistant, 3-99.90
— supervisor (general), 3-00.10
CLERICAL SUPERVISORS, 3-00
*Clerk of court, 3-93.40
— of works, 0-33.40
*—, accounts, 3-31.20
*—, audit, 3-31.90
—, bookkeeping, 3-31.20
—, correspondence, 3-93.20
—, dispatching and receiving, 3-91.20
—, filing, 3-95.30
*—, finance, 3-39.40
—, general, office, 3-93.10
—, insurance, 3-93.50
—, legal, 3-93.40
—, library, 3-95.20
—, mail sorting, 3-70.20
—, material planning, 3-92.20
—, personnel, 3-93.30
—, post office counter, 3-31.70
—, production planning, 3-92.30
—, statistical, 3-99.20
—, stock records, 3-91.30
—, storeroom, 3-91.40
*—, travel reservations, 3-94.40
—, wages, 3-39.30
Clicker cutter (machine), 8-02.20
*Clicking-machine operator, 8-02.20
*Climatologist, 0-13.40
*Climber (logging), 6-31.30
*Clinical pathologist, 0-52.60
*— psychologist, 1-92.30
*Clipper (mine), 7-11.90
*Clipping-machine operator (veneer cutting), 7-32.40
*Cloakroom attendant, 5-99.90
Clock and watch assembler, 8-42.20
— — repairer, 8-42.25
*Clock-case maker, 8-11.90
*Clog maker, 8-19.90
*Cloth calenderer, 7-56.70
*— doffer, 7-54.90
*— examiner, 7-54.70
*— washer, 7-56.35
*— waterproofer, 7-56.60
— weaver, hand, 7-54.30
*— —, jacquard loom, 7-54.45
— —, machine, except jacquard loom, 7-54.40
Clown, 1-75.20
*Club leader, 1-93.30
*Co-ordinating clerk, production planning, 3-92.30
*Coach driver, 9-85.40
*— trimmer, 7-96.30
—, sports, 1-80.30
Coach-body builder, 8-19.20
*Coagulator, latex, 7-49.90
*Coal-crusher operator, 7-12.30
*Coal-cutting-machine operator, 7-11.20
Coal-gas maker, 7-49.25
Coal-mining engineer, 0-27.20
*— technician, 0-38.90
*Coastguard, 5-89.90
Coating-machine operator, paper, 7-34.50
*— —, rubber, 9-01.90
*— —, tablets and pills, 7-49.90
— —, wire, 7-28.40
*Cobbler, 8-01.30
*Cocoa grinder, 7-77.90
*— grower, 6-12.30
Cocoa-bean roaster, 7-77.60
*Coconut grower, 6-12.30
Coding clerk (data-processing), 3-99.30
Coffee and tea taster, 7-77.20
— blender, 7-77.30
*— farm worker, 6-23.90
— grinder, 7-77.90
*— grower, 6-12.30
— roaster, 7-77.50
*— taster, 7-77.20
*Coffin maker, 8-19.90
*Cogging-mill roller, 7-22.20
Coil winder (hand), 8-53.50
— — (machine), 8-53.40
Coke burner, 7-49.20
Cold-roller (steel), 7-22.40
*Cold-storage porter, 9-71.45
*Collar maker (horse), 8-03.90
*Collateral clerk, 3-39.40
*Collating-machine operator (bookbinding), 9-26.30
*Collator, hand (bookbinding), 9-26.20
*Collection man (coin machines and meters), 3-31.60
Colour developer, 9-27.20
*— duster, ceramics decorating, 8-95.90
*— television broadcasting-equipment operator, 8-61.90
*Colour-printer operator (photography), 9-27.40
*Columnist, 1-59.15
Comber, fibre, 7-51.45
*Combine operator, 6-28.20
*Combiner operator (paper making), 7-34.90
*Combing-machine operator (textile fibres), 7-51.45
*Comic actor, 1-73.20
*—, circus, 1-75.20
*Commentator, extempore, 1-59.90
*Commerce teacher (third level), 1-31.45

Commercial and secretarial teacher (second level), 1-32.60
Commercial artist, 1-62.20
COMMERCIAL ARTISTS AND DESIGNERS, 1-62
*Commercial manager (manufacturing or mining company), 2-19.30
*— photographer, 1-63.30
— traveller, 4-32.20
COMMERCIAL TRAVELLERS AND MANUFACTURERS' AGENTS, 4-32
*Commission agent, commodity auctions, 4-43.20
*Commissioner of inland revenue, 2-02.10
*Committee executive secretary (government), 3-10.10
*Commodity broker (working proprietor), 4-10.20
*Community centre warden, 1-93.30
*— development teacher, 1-31.40
*Commutator builder, 8-51.90
Companion, 5-40.40
*Company accountant, 1-10.10
*— chairman, 2-11.10
*— director, 2-11.10
Compère, 1-79.30
Composer, 1-71.20
Composers and performing artists, 1-7
COMPOSERS, MUSICIANS AND SINGERS, 1-71
*Composing-machine operator (linotype) 9-21.30
Composition roofer, 9-53.30
— tile layer, 9-59.70
Compositor, hand, 9-21.20
COMPOSITORS AND TYPE-SETTERS, 9-21
*Compounder, chemical and related processes, 7-41.40
*—, petroleum refining, 7-45.60
*—, rubber, 9-01.20
*—, wine, 7-78.90
Compression-moulding-machine operator, plastics, 9-01.55
Compressor operator (air), 9-69.20
— — (gas), 9-69.25
*Comptometer operator, 3-41.30
*Computer applications engineer, 0-82.30
*— mechanic, 8-52.40
*— operator, electronic data processing, 3-42.20
— programmer, 0-84.20
*— programming teacher, 1-31.90
*— systems engineer, 0-23.90
*— systems technician, 0-34.90
*Computing-machine operator, 3-41.30
*Concert singer, 1-71.45
*Concher (chocolate making), 7-76.50
Concierge, apartment house, 5-51.20
—, hotel, 5-40.55
*Conciliator, labour-management relations, 1-94.20
*Concrete curer, 9-52.90
*— finisher, 9-52.40
*— finishing-machine operator (road paving), 9-74.55
— mixing-plant operator, 9-74.75
— paving-machine operator, 9-74.55
*— product caster, 9-43.20
*— reinforcing-iron worker, 9-52.30
— shutterer, 9-52.20
Concrete-mixer operator, 9-74 70
*Concreter, reinforced concrete (general), 9-52.10
Conditioner operator, tobacco, 7-81.40
Conductor, bus, 3-60.40
—, orchestra and band, 1-71.35
—, vocal group, 1-71.50
Cone operator (mine), 7-12.80
Coner (hat forms), 7-59.50
Confectionery maker, 7-76.60
*— mixer (flour), 7-76.30
*Congressman, 2-01.10
*Conjuror, 1-75.30
*Console operator, electronic data-processing, 3-42.20
*Constable, 5-82.20
Construction carpenter, 9-54.15
*— estimator (civil engineering), 0-33.20
*— inspector, 0-33.90
— joiner, 9-54.20
*— machinery mechanic, 8-49.60
*— technology teacher, 1-31.80
Constructional steel erector, 8-74.40
*Consul-general, 2-02.10
*Consular official, 3-10.10
*Container-filler (machine), 9-71.55
Continuity and script editor, 1-59.40
*— writer, 1-59.90
*Continuous casting-machine operator, 7-24.90
— mill roller (steel), 7-22.30
— mining-machine operator, 7-11.40
*— painting-machine operator, 9-39.90
— rod-casting machine operator (non-ferrous metal), 7-24.50
— sugar-refining machine operator, 7-72.60
Continuous-still operator (chemical processes, except petroleum), 7-44.30
*Contortionist, 1-75.40
*Contralto, 1-71.45
*Control clerk, stock, 3-91.30
*Control-room technician, radio and television broadcasting, 8-61.30
Controller, air traffic, 3-59.60
*—, train, 3-59.25
Controlman (petroleum refining), 7-45.50
*Converter operator (chemical processes, except petroleum), 7-44.40
*Conveyancing clerk, 3-93.40
*Conveyer operator, 9-79.90
Cook, except private service, 5-31.30
—, fish-preserving, 7-74.15
—, head, 5-31.20
*—, meat-preserving, 7-74.10
—, preserving (general), 7-74.10
—, private service, 5-31.40
*—, sauces and condiments preserving, 7-74.90
—, ship's, 5-31.50
*—, special diets, 5-31.90
—, sterilising, 7-74.20
*—, work camp, 5-31.90
Cooker, chemical and related processes, 7-42.20
—, malt, 7-78.30
COOKERS, ROASTERS AND RELATED HEAT TREATERS, 7-42
COOKS, 5-31
Cooks, waiters, bartenders and related workers, 5-3
*Cooler operator (dairy products), 7-75.90
*Cooling-plant operator, 9-69.70
Cooper, 8-19.30
*Copper floatation man, 7-12.60
Coppersmith, 8-73.30
*Copra producer (plantation), 6-12.30
*Copy typist, 3-21.40
Copywriter, advertising, 1-59.50
*—, publicity, 1-59.60
*—, technical, 1-59.65
*Copying-machine operator, pattern cards, 7-53.90
Copyist, jacquard design, 7-53.40
*Core builder, 8-51.90
*— sampler, 7-11.90

*Core-blower operator, 7-25.60
Core-laying-machine operator (plywood manufacture), 7-32.50
Coremaker (hand), 7-25.50
— (machine), 7-25.60
*Cork bark stripper, 6-32.90
*Cork-rounding-machine operator, 9-49.90
*Corn miller, 7-71.20
*Coroner, 3-10.10
CORRESPONDENCE AND REPORTING CLERKS, 3-93
Correspondence clerk, 3-93.20
*Correspondent (newspaper, journal), 1-59.15
*Corrosion chemist, 0-11.40
*Corrugating-machine operator (paper making), 7-34.90
*Corset maker (throughout), 7-91.90
*Cosmetologist, 5-70.40
*Cost and works accountant, 1-10.90
— computing clerk, 3-39.20
*— estimator (civil engineering), 0-33.20
*— section supervisor, 3-00.90
Cotton farm worker, 6-22.40
*Cotton picker, 6-22.90
*Councillor, government, 2-01.10
*Counter clerk, post office, 3-31.70
*County court judge, 1-22.10
*Coupler, railway yard, 9-84.40
*Courrier, travel, 5-91.20
*Court reporter, 3-21.30
*Covering-machine operator (bookbinding), 9-26.30
*Cowboy, 6-24.20
*Cowman, 6-25.10
*Coxswain, lifeboat, 9-81.90
*Crafts teacher (secondary education), 1-32.80
CRANE AND HOIST OPERATORS, 9-73
*— operator (bridge or gantry crane), 9-73.20
*— — (floating crane), 9-73.90
*— — (locomotive crane), 9-73.90
*— — (mobile crane), 9-73.30
*— — (stationary jib-crane), 9-73.25
*— — (tower crane), 9-73.27
*Crater (hand), 9-71.50
*Crawler-crane operator, 9-73.30
*Crayon-press-machine operator, 9-49.90
Creasing- and cutting-press operator, paper box, 9-10.50
*Creative artist (glass and ceramics), 1-61.90
*Credit clerk, 3-39.40
*Creeler, 7-54.90
*Crêping-machine operator (paper making), 7-34.90
*Crime reporter, 1-59.30
*Criminal lawyer, 1-21.10
*Criminologist, 1-92.20
*Crinkling-machine operator (paper making), 7-34.90
Critic, 1-51.30
Crocheter (hand), 7-59.30
— (machine), 7-59.35
*Crocheting-machine operator, 7-59.35
*Crop grower (field crop farmer), 6-12.20
*— research scientist, 0-53.20
*— worker, field crops (general), 6-22.10
*Cross-cutter (logging), 6-31.20
Croupier, 5-99.30
*Crucible furnaceman (metal melting), 7-23.20
*— maker (saggars), 8-93.90
Crude oil treater (oilfield), 7-43.50
Cruiser, timber, 6-32.40
Crusher operator (chemical and related processes), 7-41.20
*— — (edible oil processing), 7-79.20
*Crusher operator (minerals), 7-12.30
CRUSHERS, GRINDERS AND MIXERS, 7-41
*Cryogenic engineer, 0-24.90
*Crystal glass cutter (decorative), 8-94.20
Crystalliser operator (sugar refining), 7-72.50
*Crystallographer, 0-11.40
Culture centre worker, 1-93.30
*Cultureman, dairy, 7-75.90
Cupola furnaceman, 7-23.30
*Curate, 1-41.20
Curator, art gallery and museum, 1-91.40
*Curer, fish, 7-74.50
*—, meat, 7-74.50
Currier, leather, 7-61.50
*Customer-service engineer or technical adviser, 4-31.30
*Customs and excise officer, 3-10.10
*Cut-off-saw operator (barrel staves), 7-32.90
Cutlery and tool grinder (except machine tools), 8-35.40
Cutter and polisher, gems, 8-80.30
*—, crystal glass, 8-94.20
*—, electric arc, 8-72.90
*—, fish, 7-79.40
—, flame (hand), 8-72.50
—, flame metal-cutting machine, 8-72.55
—, fur, 7-92.50
*—, garments (except leather or fur), 7-94.50
—, glass, 8-91.56
—, gloves (except leather), 7-94.70
—, gloves (leather), 7-94.80
—, jacquard card, 7-53.50
—, leather, 8-03.30
—, leather garments, 7-94.60
*—, mattress, 7-94.90
—, meat, 7-73.30
—, optical glass, 8-91.60
*—, plastics, 9-01.90
*—, precious metal, 8-80.90
*—, sail, 7-94.90
*—, sugar cane, 6-22.90
*—, tent, 7-94.90
*—, tire treads, 9-02.90
*—, umbrella, 7-94.90
*—, upholstery, 7-94.90
*Cutter-shaper, glass (decorative), 8-94.90
Cutting instruments sharpener, 8-35.40
Cutting- and creasing-press operator, paper-box, 9-10.50
Cutting-machine operator (mine), 7-11.20
*— — (sugar confectionery), 7-76.60
— —, tobacco, 7-81.70
*Cyanide hardener, 7-26.40
*— man (ore separation), 7-12.90
*Cycle racer, 1-80.20
*Cylinder honer, 8-34.70
— pressman, 9-22.20
*Cytologist, 0-51.90
*Cytotechnician, 0-54.30

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*Dairy bacteriologist, 0-52.50
*— cultureman, 7-75.90
— farm worker (general), 6-25.10
DAIRY FARM WORKERS, 6-25
Dairy farmer, 6-12.50
— product pasteuriser, 7-75.20
— — processer (general), 7-75.10
DAIRY PRODUCT PROCESSERS, 7-75
*Dam tender (water works), 9-69.90
*Dance-band leader, 1-71.35
Dancer, 1-72.30

*Dancing partner, 5-99.90
*— teacher (private), 1-72.30
*— — (second level), 1-32.50
*— — (third level), 1-31.90
*Darkroom man (black-and-white developing), 9-27.30
*— — (colour developing), 9-27.20
*— — (photograph enlarging), 9-27.50
*— — (photograph printing), 9-27.40
*Data-processing equipment fitter, 8-52.40
*— (punched-card) machine operator, 3-42.30
*Deaf, teacher of the, 1-35.30
*Dealer, retail (working proprietor), 4-10.30
*Deck hand, 9-81.40
*— officer, ship, 0-42.30
Decorator, ceramics, 8-95.40
*—, — (freehand painting), 8-95.30
*—, — (spray-painting), 8-95.50
*Decorator-painter, buildings, 9-31.20
*—, glass, 8-95.20
Deep-sea fisherman, 6-41.20
*Degreaser (metal), 7-29.40
Degummer, silk, 7-56.40
*Dehairer, hide (hand), 7-61.30
*—, — (machine), 7-61.35
Dehydrator, foodstuffs, 7-74.40
*Dehydrator-plant operator (oilfield), 7-43.50
*Delinquency prevention social worker, 1-93.40
*Delivery boy, newspapers, 4-52.40
*— pilot (aircraft), 0-41.30
*Demographer, 0-81.30
*Demolition labourer, 9-99.10
— worker, 9-59.45
Demonstrator, 4-51.50
Dental assistant, 0-64.20
— —, school, 0-64.30
DENTAL ASSISTANTS, 0-64
*Dental auxiliary, 0-64.20
*— chair-side attendant, 5-99.40
— hygienist, 0-64.40
*— instrument maker and repairer, 8-42.90
— prosthesis maker and repairer, 8-42.50
*— technician, 8-42.50
Dentist, general, 0-63.10
—, public health, 0-63.30
—, specialised, 0-63.20
*—, unregistered, 0-64.20
*Dentistry teacher, 1-31.30
*Dentist's receptionist, 3-94.30
DENTISTS, 0-63
*Department head, government, 2-02.10
*Depot superintendent, railway, 3-59.20
*— —, road transport, 3-59.40
*Deputy secretary-general (government administration), 2-02.10
*Dermatologist, 0-61.20
*Derrick-boat operator, 9-73.90
Derrickman (oil and gas wells), 7-13.20
Design copyist, jacquard, 7-53.40
Designer, industrial and commercial products, 1-62.40
—, interior decoration, 1-62.30
*Desilting basin operator, 9-69.90
Desulphurisation treater (petroleum refining), 7-45.20
*Detail programmer, 0-84.20
Detective, 5-82.30
*— (private), 5-89.20
*Detergents chemist, 0-11.20
Developer, black-and-white, 9-27.30
—, colour, 9-27.20
*Developing-machine operator (motion picture), 9-27.90
*Development manager, 2-19.20
*Diamond mining engineer, 0-27.90
*— — technician, 0-38.90
*— polisher, industrial, 8-80.30
*— sawyer, industrial, 8-80.30
*Diamond-pointed tool maker, 8-32.90
*Die finisher, 8-32.90
*— maker, 8-32.20
Die-casting machine operator, 7-24.40
*Die-press operator, forging, 8-31.40
Die-presser, pottery and porcelain, 8-92.50
*Die-sinking machine setter-operator, metalworking, 8-33.90
Diesel engine mechanic (except motor vehicle), 8-49.20
*— engineer, 0-24.30
*Dietetic consultant, food processing, 0-69.90
*Dietetics teacher (third level), 1-31.75
Dietitian (general), 0-69.10
*—, therapeutic, 0-69.10
DIETITIANS AND PUBLIC HEALTH NUTRITIONISTS, 0-69
Diffuser operator (beet sugar), 7-72.30
Digester operator, 7-33.40
*— — (wood distillation), 7-44.60
*Digger, chalk, clay, gravel or sand, 7-11.90
*—, trench, 9-99.10
*Digital computer operator, 3-42.20
*Dining-car attendant (railway), 5-32.10
*Dining-saloon steward (ship), 5-32.10
*Dip-painter, hand (except glass and ceramics), 9-39.40
*Dip-plater, 7-28.30
*Diplomatic representative, 2-02.10
*Dipper, candlemaking, 9-49.60
—, ceramics, 8-95.60
*—, hand (except glass and ceramics), 9-39.40
*—, sugar confectionery, 7-76.90
*—, tobacco, 7-81.40
*—, wood treating, 7-31.30
*Dipping-machine attendant, ceramics decorating, 8-95.90
*— operator, rubber, 9-01.90
Direct lithographic pressman, 9-22.50
— — transferrer, 9-24.50
Director of photography (motion picture), 1-63.50
*Director-general (manager), 2-11.10
*Director, company, 2-11.10
*—, funeral, 5-92.20
*—, government department, 2-02.10
*—, intergovernmental organisation, 2-02.10
—, motion picture, radio and television, 1-73.40
*—, school, 1-39.40
—, stage, 1-73.30
*Directory compiler, 3-93.90
*Disc jockey, 1-79.30
*Disc-recording-equipment operator, 8-62.20
*Discount bookkeeper, 3-31.20
*Discount-store manager, 4-00.30
*Dishwasher (restaurant), 9-99.10
*Dispatch clerk, mail, 3-70.90
*— officer, air transport, 3-59.70
*Dispatcher, boat, 3-59.90
*—, bus service, 3-59.40
*—, electricity load (power station), 9-61.70
*—, gas (pipe lines), 3-59.90
*—, oil (pipe lines), 3-59.90
*—, road transport, 3-59.40
—, train, 3-59.25
Dispatching and receiving clerk, 3-91.20
Dispensing optician, 0-75.30
Display artist, 1-62.50
*— supervisor (retail trade), 4-21.90

*Distillation operator (wood), 7-44.60
*— —, batch (chemical processes, except petroleum), 7-44.20
*— —, continuous (chemical processes, except petroleum), 7-44.30
*Distiller (alcohol, perfume or turpentine), 7-44.90
*— (petroleum refining), 7-45.40
*Distribution engineer (electric power), 0-23.30
*District court judge, 1-22.10
*— inspector, railway, 3-59.30
*— midwife, 0-73.10
*Ditch digger, 9-99.10
*Diver, construction, 9-59.60
*—, pearl, 6-49.90
*—, sponge, 6-49.90
*Dock gateman, 9-89.90
Docker, 9-71.20
DOCKERS AND FREIGHT HANDLERS, 9-71
Dockmaster, dry dock, 9-89.20
*Docks and harbour construction engineer, 0-22.90
*Doctor, general medical practice, 0-61.05
*—, specialised medical practice, 0-61.20
Doctor's or dentist's receptionist, 3-94.30
*Document-sorting machine operator, 3-99.90
Doll and stuffed toy maker, 9-49.40
Domestic science and general nursing teacher (second level), 1-32.75
*Donkey engine operator, 9-73.50
*Doorman, 5-99.90
*Dormitory supervisor, 5-20.90
Doubler, 7-52.30
*Doubling helper, 7-52.90
*Doubling-machine operator (thread and yarn), 7-52.30
*Dough maker (bread), 7-76.20
*Dovetailing-machine operator (woodworking), 8-12.90
*Dowelling-machine operator (woodworking), 8-12.90
*Dragline-bucket operator, 9-74.20
*Drain layer, 9-59.50
*Drama critic, 1-51.30
*— teacher (second level), 1-32.50
*— — (third level), 1-31.90
*Dramatic actor, 1-73.20
*Dramatist, 1-51.20
*Draughtsman, aeronautical, 0-32.20
—, architectural, 0-32.50
—, cartographical, 0-32.60
—, civil engineering, 0-32.40
*—, die, 0-32.20
—, electrical, 0-32.30
*—, electronics, 0-32.30
—, general, 0-32.10
*—, geological, 0-32.90
*—, heating and ventilation systems, 0-32.90
*—, jig and tool, 0-32.20
*—, marine engineering, 0-32.20
—, mechanical, 0-32.20
*—, structural engineering, 0-32.40
*—, topographical, 0-32.60
DRAUGHTSMEN, 0-32
*Drawbridge operator, 9-73.55
*Drawer-in helper, 7-54.90
*—, hand (textile weaving), 7-54.20
Drawer, fibre, 7-51.50
*—, glass tube, 8-91.76
—, seamless pipe and tube, 7-27.40
—, wire (hand), 7-27.20
—, wire (machine), 7-27.30
*Drawing-frame operator (textile fibres), 7-51.50
*Drawing-in-machine operator (textile weaving), 7-54.25
Drawing-machine operator, glass, 8-91.40
Dredge operator, 9-74.35
*Dredger crewman, 9-81.90
*Dredging engineer, 0-22.90
*Dress designer, 1-62.40
*Dresser, fish, 7-79.40
*—, metal, 7-29.30
Dressmaker, 7-91.40
*—, theatrical, 7-91.90
Drier operator (chemical and related processes), 7-42.40
*— — (dairy products), 7-75.90
*— — (foodstuffs), 7-74.40
*—, snuff, 7-89.20
*—, textile, 7-56.90
*Drifter crewman, 6-41.20
Driller, cable (oil and gas wells), 7-13.40
*—, plastics, 9-01.90
*—, precious metal, 8-80.90
—, rotary (oil and gas wells), 7-13.30
*—, stone, 8-20.90
—, well (except oil and gas), 7-13.80
Drilling-machine operator, 8-34.60
— — (mine and quarry), 7-11.30
— setter-operator, 8-33.60
*Driver, ambulance, 9-85.90
*—, animal (mine and quarry), 9-86.30
—, animal-drawn vehicle (road), 9-86.20
*—, animal-train, 9-86.90
*—, bulldozer, 9-74.30
*—, car delivery, 9-85.90
*—, concrete paving machine, 9-74.55
—, dumper, 9-79.30
*—, elephant, 9-86.90
*—, excavating machine, 9-74.20
*—, lifting truck, 9-79.20
—, lorry and van (local transport), 9-85.50
—, lorry and van (long-distance transport), 9-85.60
—, motor bus, 9-85.40
*—, motor cycle, 9-85.70
—, pedal vehicle, 9-89.50
*—, postal vehicle, 9-85.90
*—, private motor-car, 9-85.90
—, railway-engine, 9-83.20
*—, — (mine and quarry), 9-83.60
*—, road-grader and scraper, 9-74.45
*—, road-roller, 9-74.50
*—, shuttle-car (mine), 9-79.40
*—, tar-spreading machine, 9-74.60
—, taxi, 9-85.30
—, timber carrier, 9-79.50
—, tram, 9-85.20
*—, trench-digging machine, 9-74.25
*—, trolley-bus, 9-85.40
—, underground or elevated train, 9-83.50
*Driving instructor, 9-85.90
*Drop forger, 8-31.20
Drop-hammer operator, 8-31.30
*Drover, cattle, 6-24.90
*Druggist, 0-67.10
*Drum maker, 9-41.90
*Dry dock attendant, 9-89.90
— — master, 9-89.20
Dry-cleaner (hand), 5-60.40
Dry-cleaning machine operator, 5-60.30
*Dry-kiln operator, brick and tile, 8-93.60
*— —, pottery and porcelain, 8-93.50
*Dryer (laundry), 5-60.90
*— (tobacco), 7-81.90
*Dubbing-machine operator, 8-62.90

Dumper driver, 9-79.30
*Duplicating-machine operator, 3-99.50
*Dustman, 9-99.10
*Dye chemist, 0-11.20
Dyer, fabric, 7-56.25
—, garment, 7-56.30
*—, hosiery, 7-56.90
*—, knitwear, 7-56.90
*—, leather (hand or spray), 7-61.90
*—, leather (vat), 7-61.55
—, pelt (hand), 7-62.50
*—, pelt (vat or spray), 7-62.90
*—, textile fibre, 7-56.90
—, yarn, 7-56.20
*Dynamo fitter, 8-51.20

E

*Earth-boring machine operator (construction), 9-74.90
EARTH-MOVING AND RELATED MACHINERY OPERATORS, 9-74
Earth-moving equipment and construction machinery mechanic, 8-49.60
— — fitter-assembler, 8-41.65
*Ecologist, animal, 0-51.30
*—, plant, 0-51.20
*Econometrician, 0-90.10
*Economic botanist, 0-51.20
*— geographer, 1-92.50
*— historian, 1-92.60
*Economics and finance statistician, 0-81.30
*— teacher (third level), 1-31.45
Economist (general), 0-90.10
— (specialised), 0-90.20
ECONOMISTS, 0-90
*Edge gilder (bookbinding), 9-26.90
*— gluer (veneer sheets), 7-32.90
— grinder, glass, 8-91.64
*— liner, ceramics decorating, 8-95.90
*— marbler (bookbinding), 9-26.90
— sawyer, 7-32.20
*— tool sharpener, 8-35.40
*— trimmer (shoe finishing), 8-02.55
Editor, book, 1-59.45
—, continuity and script, 1-59.40
—, newspapers and periodicals, 1-59.20
*Editor-in-chief, 1-59.20
Education methods adviser, 1-39.20
*— statistician, 0-81.30
*— teacher (third level), 1-31.55
*Educational adviser, 1-39.20
*— psychologist, 1-92.30
*Efficiency engineer, 0-28.10
*Egg producer (farm), 6-12.60
*Electoral official, 3-10.10
*Electric arc furnaceman (metal melting), 7-23.20
— — furnaceman (steel refining), 7-21.60
— — welder (hand), 8-72.20
— — welder (machine), 8-72.25
— cable jointer, 8-57.50
*— cell man, 7-49.90
ELECTRIC LINEMEN AND CABLE JOINTERS, 8-57
*Electric motor fitter, 8-51.20
— power lineman, 8-57.20
— traction lineman, 8-57.30
ELECTRICAL AND ELECTRONIC ENGINEERING TECHNICIANS, 0-34
ELECTRICAL AND ELECTRONIC EQUIPMENT ASSEMBLERS, 8-53
Electrical and electronic products inspector and tester, 8-59.20
ELECTRICAL AND ELECTRONICS ENGINEERS, 0-23
*Electrical components assembler, 8-53.90
*— control apparatus fitter, 8-51.40
— draughtsman, 0-32.30
— elevator and related equipment fitter, 8-51.60
— engineer (general), 0-23.05
*— — (power distribution and transmission), 0-23.30
*— — (power generation), 0-23.20
— engineering technician (general), 0-34.05
— — technician (high voltage), 0-34.20
— equipment assembler, 8-53.20
— fitter (general), 8-51.10
ELECTRICAL FITTERS, 8-51
Electrical fitters and related electrical and electronics workers, 8-5
Electrical instrument fitter, 8-51.50
*— load dispatcher (power station), 9-61.70
— motor and generator fitter, 8-51.20
— repairman, 8-55.70
*— switchboard operator (power station), 9-61.60
— switchgear and control apparatus fitter, 8-51.40
— transformer fitter, 8-51.30
ELECTRICAL WIREMEN, 8-55
Electrician, aircraft, 8-55.30
—, buildings, 8-55.20
—, general, 8-55.10
*—, locomotive, 8-55.40
—, maintenance, 8-55.60
*—, motor vehicle, 8-55.40
*—, neon-lighting, 8-55.90
—, ship, 8-55.35
—, stage and studio, 8-55.50
*—, tram, 8-55.40
*Electrician-repairman (domestic electrical equipment), 8-55.70
Electricity and magnetism physicist, 0-12.60
*Electricity-generating plant operator (steam), 9-61.20
*— turbine operator, 9-61.50
*Electricity-generator operator (private installation), 9-61.90
*Electrocardiograph technician, 0-79.90
*Electroencephalograph technician, 0-79.90
*Electronic components assembler, 8-53.90
— computer and related equipment fitter, 8-52.40
— — operator, 3-42.20
— equipment assembler, 8-53.30
*— prototype fitter, 8-52.10
— signalling systems fitter, 8-52.60
Electronics engineer (general), 0-23.10
— engineering technician (general), 0-34.10
— fitter (general), 8-52.10
— — (industrial equipment), 8-52.50
*— — (instruments), 8-52.90
— — (medical equipment), 8-52.30
— — (radio, television and radar equipment), 8-52.20
ELECTRONICS FITTERS, 8-52
Electronics physicist, 0-12.70
Electroplater, 7-28.20
*Electrotherapist, 0-76.20
Electrotyper, 9-23.30
Elementary-school teacher, 1-33.20
*Elephant driver, 9-86.90
*— trainer, 1-75.90
Elevated or underground train driver, 9-83.50
*Elevator fitter, electrical, 8-51.60
*— operator (material-handling), 9-79.90
*Elrod casting-machine operator, 9-21.40

Embalmer, 5-92.30
*Embassy secretary (diplomatic officer), 3-10.10
Embosser, book (hand), 9-26.40
—, — (machine), 9-26.50
*Embossing-machine operator, rubber, 9-01.90
Embroiderer, hand, 7-95.60
—, machine, 7-95.70
*Embryologist, 0-51.30
*Emery polisher (metalworking), 8-35.90
*Employment counsellor, 1-94.30
*— interviewer, 1-94.20
*Emulsifier (dairy products), 7-75.90
*Enameller, ceramics, 8-95.30
*—, glass, 8-95.20
*—, jewellery, 8-80.90
*Endocrinologist, 0-52.40
Engine-driver (mine and quarry), 9-83.60
— —, railway, 9-83.20
— driver's assistant, railway, 9-83.40
*— tuner, 8-43.90
*Engine-lathe operator (metal working), 8-34.20
*— setter-operator (metalworking), 8-33.20
*Engineer officer, ship, 0-43.20
*Engineering geologist, 0-13.30
*— illustrator, 0-32.70
*— salesman, 4-31.20
*— statistician, 0-81.30
*— teacher (second level), 1-32.80
*— — (third level), 1-31.25
*— technology teacher 1-31.80
Engineers (professional)
See specialisation (civil, electrical, etc.)
*Engine-room mechanic, ship, 8-49.90
*— rating, ship, 9-82.90
Engraver and etcher (artistic), 1-61.50
—, glass, 8-94.20
—, hand, metal printing plate, roller and die, 9-24.20
—, hand, wood, rubber or linoleum block, 9-24.30
—, jewellery, 8-80.80
—, lithographic stone, 9-24.15
—, machine (metal printing roller), 9-24.40
*—, music printing, 9-24.90
*—, photogravure (general), 9-25.10
Engraving pantograph operator, 9-24.45
*Enlarger, photographic, 9-27.50
*Enrobing-machine operator (sugar confectionery), 7-76.90
*Entomologist, 0-51.30
Envelope and paper-bag maker (machine), 9-10.70
*— maker (hand), 9-10.90
Erector and installer, machinery, 8-41.75
*—, airframes (metal), 8-41.85
*—, prefabricated building sections, 9-59.90
*Errand boy, 3-70.40
*Escort (social), 5-99.90
*Essayist, 1-51.20
*Establishments officer (civil service commission), 3-10.10
*Estate agent, 4-41.30
*Estimating clerk, 3-39.20
*Estimator, chemical engineering, 0-36.90
*—, electrical engineering, 0-34.90
*—, electronic engineering, 0-34.90
*—, mechanical engineering, 0-35.90
Etcher and engraver (artistic), 1-61.50
—, glass, 8-94.30
—, metal engraving (printing plates or rollers), 9-24.60
*—, photogravure, 9-25.50
*Ethnologist, 1-92.40
*Ethyl blender (petroleum refining), 7-45.60
*Etymologist, 1-95.20
*Evangelist, 1-41.40
Evaporator operator, 7-44.50
*— — (food essences), 7-74.90
*— — (sugar refining), 7-72.90
*Eviscerator, animal, 7-73.90
*—, poultry, 7-73.90
Examiner, fabrics, 7-54.70
*—, pensions claims (social security), 3-10.10
Excavating-machine operator, 9-74.20
*Executive company secretary, 2-19.40
*— housekeeper, 5-20.20
— official, government, 3-10.10
*— secretary (government administration), 3-10.10
*— secretary-stenographer, 3-21.20
*Exhibition designer, 1-62.50
*Expellerman (chemical and related materials), 7-43.20
*Experimental psychologist, 1-92.30
*Export manager, 4-00.20
*Exporter (working proprietor), 4-10.20
*External grinding-machine operator (metalworking), 8-34.65
*— — setter-operator (metalworking), 8-33.70
Extractive metallurgist, 0-26.20
— metallurgy technician, 0-37.20
*Extractor operator (chemical and related materials), 7-43.90
— — (wood distillation), 7-44.60
Extruder operator (metal), 7-27.50
Extruding-machine operator, plastics, 9-01.60
— —, rubber, 9-01.30
Extruding-press operator, clay, 8-92.55
*Extrusion-press operator (macaroni making), 7-76.40
*Eyeletter (shoemaking), 8-02.90

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Fabric dyer, 7-56.25
*— waterproofer, 7-56.60
*Fabricator (plastics products), 9-01.80
Fabrics examiner, 7-54.70
— repairer, 7-54.75
*Factory inspector, 3-10.10
*Fairground attendant, 5-99.90
Faith healer, 1-49.20
*Family caseworker, 1-93.20
*Farm demonstrator, 0-53.60
— equipment operator, motorised, 6-28.20
*— — operator, non-motorised, 6-28.90
*— hand (field crops), 6-22.10
*— —, dairy farm (general), 6-25.10
*— —, fur-bearing animals, 6-24.50
*— —, general, 6-21.05
*— —, livestock (general), 6-24.10
*— —, orchard, 6-23.20
*— —, silkworms, 6-29.30
— helper (general), 6-21.10
*— labourer (general), 6-21.10
*— machinery mechanic, 8-49.55
FARM MACHINERY OPERATORS, 6-28
Farm manager, 6-00.20
FARM MANAGERS AND SUPERVISORS, 6-00
Farm supervisor, 6-00.30
— worker, (general), 6-21.05
— —, beef cattle, 6-24.10
*— —, cocoa, 6-23.90
*— —, coffee, 6-23.90
— —, cotton, 6-22.40
— —, dairy (general), 6-25.10

Farm worker, field crop (general), 6-22.10
— —, fish, 6-49.20
*— —, fruit, 6-23.20
— —, fur-bearing animals, 6-24.50
*— —, groundnut, 6-22.90
*— —, hops, 6-23.90
*— —, jute, 6-22.90
— —, livestock (general), 6-24.10
*— —, market garden, 6-27.20
*— —, mushroom, 6-29.90
*— —, nursery, 6-27.30
— —, orchard, 6-23.20
*— —, ostrich, 6-24.90
— —, oyster farm, 6-49.30
— —, pig, 6-24.40
— —, poultry (general), 6-26.10
— —, rice, 6-22.50
*— —, rubber, 6-23.50
— —, sheep, 6-24.30
— —, sugar-cane, 6-22.60
*— —, tea, 6-23.40
*— —, tobacco, 6-22.90
*— —, vegetable farm (except market garden), 6-22.20
*— —, vineyard, 6-23.30
— —, wheat, 6-22.30
*Farmer, alfalfa, 6-12.20
*— and grazier, 6-11.10
*—, apiarist, 6-12.90
*—, aviary keeper, 6-12.90
*—, battery poultryman (working proprietor), 6-12.60
*—, beekeeper, 6-12.90
*—, bird breeder (pet or game), 6-12.90
*—, breeder and animal raiser, 6-12.40
*—, bulb, 6-12.70
*—, carnation, 6-12.70
*—, cattle raiser, 6-12.40
*—, cereal, 6-12.20
*—, chicken, 6-12.60
*—, cocoa, 6-12.30
*—, coconut, 6-12.30
*—, coffee, 6-12.30
*—, copra, 6-12.30
*—, corn, 6-12.20
*—, cotton, 6-12.20
—, dairy, 6-12.50
*—, duck, 6-12.60
*—, egg producer, 6-12.60
*—, field crop, 6-12.20
*—, flax, 6-12.20
*—, flower, 6-12.70
*—, fruit, 6-12.30
*—, fur-bearing animal raiser, 6-12.90
—, general, 6-11.10
*—, goose, 6-12.60
*—, grain, 6-12.20
*—, grazier, 6-12.40
*—, groundnut, 6-12.20
*—, hatcher and breeder, poultry, 6-12.60
*—, hop, 6-12.30
*—, horse breeder, 6-12.40
—, horticultural, 6-12.70
*—, jute, 6-12.20
*—, kennel keeper, 6-12.40
*—, laboratory animal raiser, 6-12.40
—, livestock, 6-12.40
*—, maize, 6-12.20
*—, market gardener, 6-12.70
*—, milk, 6-12.50
*—, mixed farming, 6-11.10
*Farmer, mushroom grower, 6-12.90
*—, nursery, 6-12.70
*—, nut, 6-12.30
—, orchard, vineyard and related tree and shrub crop, 6-12.30
*—, pig raiser, 6-12.40
—, poultry, 6-12.60
*—, rancher, 6-12.40
*—, reed or osier grower, 6-12.90
*—, reindeer breeder, 6-12.40
*—, rice, 6-12.20
*—, rose grower, 6-12.70
*—, rubber planter, 6-12.30
*—, seed, 6-12.70
*—, sericulturist, 6-12.90
*—, sheep raiser, 6-12.40
*—, silkworm raiser, 6-12.90
*—, sisal, 6-12.20
*—, soya-bean, 6-12.20
*—, spice grower, 6-12.90
*—, stud breeder, 6-12.40
*—, sugar-beet, 6-12.20
*—, sugar-cane, 6-12.20
*—, tea planter, 6-12.30
*—, tobacco planter, 6-12.20
*—, tulip, 6-12.70
*—, turkey, 6-12.60
*—, vegetable (except market garden), 6-12.20
*—, — (market garden), 6-12.70
*—, viniculturist, 6-12.30
*—, winegrower, 6-12.30
*—, wheat, 6-12.20
Farmers, 6-1
Farming adviser, 0-53.60
*Farrier, 8-31.10
*Fashion artist, 1-62.20
*— designer, 1-62.40
*— editor, 1-59.25
— model, 4-51.40
*— photographer, 1-63.30
*— reporter, 1-59.30
*Feature writer, 1-59.15
*Features editor, 1-59.25
*Feeder, printing press, 9-22.90
*Feller (logging), 6-31.20
Fellmonger, 7-61.25
Fellows
See Teachers, university and higher education
Felt hood former, 7-59.50
Fermenting-room man, 7-78.35
*Ferry superintendent, 3-59.90
*Ferryboat conductor, 3-60.90
*Ferryboatman, 9-81.90
*Fettler, 7-29.30
Fibre carder, 7-51.35
— comber, 7-51.45
— drawer, 7-51.50
*— dyer (textile), 7-56.90
— grader and classer, 7-51.15
— lapper, 7-51.40
— maker (synthetic), 7-49.35
— mixer and blender, 7-51.25
*— opener, 7-51.90
— picker, 7-51.30
FIBRE PREPARERS, 7-51
Fibre rover, 7-51.55
*— scourer, wool, 7-51.20
*— technician, 0-39.90
*— technologist, 0-29.90

Fibreglass maker, 8-99.70
*Fibro-cement product maker, 9-43.30
Fibrous plasterer, 9-55.40
FIELD CROP AND VEGETABLE FARM WORKERS, 6-22
Field crop farm worker (general), 6-22.10
— — farmer, 6-12.20
*Filament winder, 8-53.90
Filing clerk, 3-95.30
*Filleter, fish, 7-79.40
*Film actor, 1-73.20
*— and photographic paper maker, 9-49.70
*— critic, 1-51.30
*— developer (black-and-white), 9-27.30
*— — (colour), 9-27.20
*— printer, 9-27.40
*— projectionist, cinema, 8-62.40
*Film-drying-machine operator (motion picture), 9-27.90
FILTER AND SEPARATOR OPERATORS, 7-43
*Filter operator (water works), 9-69.50
Filter-press operator, 7-43.20
*— operator, clay, 8-99.90
Filterer, rotary-drum, 7-43.30
Finance clerk, 3-39.40
*Financial economist, 0-90.20
*— editor, 1-59.25
Fine arts teacher (second level), 1-32.50
*Finisher, book, 9-26.40
—, casting, 7-29.30
—, cement, 9-52.40
*—, die, 8-32.90
*—, hat, 7-93.90
*—, metal polishing, 8-35.90
*—, pelt, 7-62.60
*—, photo-engraving, 9-25.60
*—, plastics, 9-01.90
—, shoe, 8-02.55
—, wooden furniture, 8-19.55
*Fire investigator, 5-81.90
— patrolman, 5-81.20
Fire-fighter (general), 5-81.10
—, aircraft accident, 5-81.40
—, forest, 6-32.50
FIRE-FIGHTERS, 5-81
Fire-prevention specialist, 5-81.20
Fire-salvage specialist, 5-81.30
Firebrick layer, 9-51.30
*Fireman, 5-81.10
*—, brick and tile oven, 8-93.60
*—, chemical and related processes, 7-42.40
*—, pottery oven, 9-93.50
—, railway steam engine, 9-83.30
—, ship, 9-82.20
*—, steam boiler, 9-69.30
*First fixer, 9-54.15
*First-aid attendant, 5-99.40
First-level education teacher, 1-33.20
Fish butcher, 7-79.40
*— curer, 7-74.50
— farm worker, 6-49.20
*— fryer, 5-31.30
*— hatcher, 6-49.20
*— porter, 9-71.45
*— smoker, 7-74.60
Fish-preserving cook, 7-74.15
Fisherman, deep-sea, 6-41.20
—, inland and coastal waters, 6-41.30
*—, seal, 6-49.50
FISHERMEN, 6-41
Fishermen, hunters and related workers, 6-4
*Fishery bacteriologist, 0-52.50
*Fishing guide, 5-91.90
*Fishing-net maker (hand), 7-59.40
*Fishing-tool operator (oil and gas wells), 7-13.90
Fitter, electrical elevators and related equipment, 8-51.60
—, — (general), 8-51.10
*—, — refrigeration and air-conditioning equipment, 8-51.90
—, — instrument, 8-51.50
—, — motor and generator, 8-51.20
*—, — signalling systems, 8-51.90
—, — switchgear and control apparatus, 8-51.40
—, — transformers, 8-51.30
*—, electronic instruments, 8-52.90
—, electronics (computer and related equipment), 8-52.40
—, — (general), 8-52.10
—, — (industrial equipment), 8-52.50
—, — (medical equipment), 8-52.30
*—, — (meteorological equipment), 8-52.90
—, — (radio, television and radar equipment), 8-52.20
—, — (signalling systems), 8-52.60
—, machinery (general), 8-41.05
*—, made-to-measure dressmaking, 7-91.40
*—, — tailoring, 7-91.20
*—, plate-glass, 9-57.40
—, sole, 8-02.40
*—, uppers preparing, 8-02.30
Fitter-assembler, agricultural machinery, 8-41.60
—, aircraft engines, 8-41.20
—, earth-moving equipment, 8-41.65
—, internal combustion engine (except aircraft and marine engines), 8-41.15
—, machinery (general), 8-41.10
—, marine engine, 8-41.25
—, metalworking machine-tool, 8-41.35
—, mining machinery, 8-41.40
—, printing machinery, 8-41.45
*—, reciprocating steam engines (except marine), 8-41.90
—, textile machinery, 8-41.50
—, turbine (except aircraft and marine), 8-41.30
—, woodworking machinery, 8-41.55
*Fixer mason, 9-51.40
*—, prefabricated building sections, 9-59.90
Flame-cutter (hand), 8-72.50
— (machine), 8-72.55
*Flat knitter, 7-55.20
*Flax farm worker, 6-22.90
*— farmer, 6-12.20
*Flayer, 7-73.90
*Flenser (whale), 6-49.40
*Flesher, hide (hand), 7-61.30
*—, — (machine), 7-61.35
—, pelt, 7-62.30
*Fleshing-machine operator, 7-61.35
Flight engineer, 0-41.50
— navigator, 0-41.40
— operations officer, 3-59.70
— radio operator, 3-80.60
*Float master, 3-59.90
Float-glass bath operator, 8-91.52
Floatation man, 7-12.60
*Floating-crane operator, 9-73.90
Floor and pit moulder, 7-25.30
*— layer, composition tiles, 9-59.70
*— —, parquetry, 9-54.75
*— —, wood block, 9-54.90
*— supervisor (retail trade), 4-21.30
*— tiler, 9-51.50

*Floriculturist, 0-53.30
*Flower maker, artificial, 7-99.90
*Flue cleaner, 5-52.40
*Flush binder *hand (bookbinding), 9-26.20
Flying instructor, 0-41.60
*Folder (uppers preparing), 8-02.30
*Folding-machine operator (bookbinding), 9-26.30
*— — (paper box), 9-10.50
Food and beverage processers, 7-7
Food and drink technologist, 0-29.40
*— bacteriologist, 0-52.50
*— chemist, 0-11.20
FOOD PRESERVERS, 7-74
*Food technician, 0-39.90
Foodstuffs dehydrator, 7-74.40
— freezer, 7-74.30
*— pickler, 7-74.50
*Footwear maker, general, 8-01.10
— —, orthopaedic, 8-01.20
*— —, raffia and related materials, 9-49.90
*— —, sports, 8-01.90
*— repairer, 8-01.30
*Foreign editor, 1-59.25
*— exchange cashier, 3-31.50
Foreman, specialised craft
See Introduction: code to craft
Foremen, general
See Supervisors and general foremen, production
*Forensic pathologist, 0-52.60
*— science teacher, 1-31.90
Forest fire-fighter, 6-32.50
*— patrolman, 6-32.90
*— ranger, 6-32.90
— supervisor, 6-32.20
*Forester, 6-32.20
*Forestry scientist, 0-53.40
*— teacher, 1-31.60
— worker, 6-32.30
Forestry workers, 6-3
FORESTRY WORKERS (EXCEPT LOGGING), 6-32
*Forge hammer driver, 8-31.90
*— hammersmith, 8-31.20
Forging-press operator, 8-31.40
*Fork-lift truck operator, 9-79.20
*Formal waiter, 5-32.30
Former, felt hood, 7-59.50
*Forming press operator, cardboard articles, 9-10.60
*Fortune teller, 1-99.60
*Forwarder (bookbinding), 9-26.20
*Foundry metallurgist, 0-26.30
*— technician, 0-37.30
*Frame operator, drawing (textile fibres), 7-51.50
*— —, roving (textile fibres), 7-51.55
*— —, thread and yarn spinning, 7-52.20
*— sawyer (precision), 8-12.20
*— builder, vehicle (wood), 8-19.20
*Franking-machine operator, 3-99.90
Freezer, foodstuffs, 7-74.30
*— operator, 9-69.70
*— — (dairy products), 7-75.90
*Freight traffic department manager, 2-19.60
*— receiving clerk, 3-91.20
*Fresh-water biologist, 0-51.90
*Fret-saw operator, 8-12.20
*Fringing-machine operator, 7-55.90
*Frit kilnman, 8-99.50
*Frogman (salvage), 5-89.90
*Froster, glass sandblasting, 8-94.40
*— operator (food freezing), 7-74.30
*Fruit farmer, 6-12.30
*— farm worker, 6-23.20
*— picker, 6-23.90
*— porter, 9-71.45
Fruit-press operator, 7-78.80
*Fuel technician, 0-36.90
*— technologist, 0-25.90
Fuller, textile, 7-56.55
*Fulling-mill operator (textile), 7-56.55
*Fun-fair attendant, 5-99.90
*Funeral attendant, 5-92.90
*— director, 5-92.20
Fur cutter, 7-92.50
— fibre mixer (machine), 7-59.45
*— — shaver, 7-62.90
— grader and matcher, 7-92.40
— hand-sewer, 7-95.40
— nailer, 7-92.60
— patternmaker, 7-92.30
— sewer, hand, 7-95.40
*— —, machine, 7-95.50
— tailor, 7-92.20
FUR TAILORS AND RELATED WORKERS, 7-92
*Fur trapper, 6-49.60
*— trimmer, 7-92.90
Fur-bearing animal farm worker, 6-24.50
*Furnace brazer, 8-72.90
*— charger (metal melting and reheating), 7-23.90
*— — (ore smelting and refining), 7-21.90
*— helper (metal melting and reheating), 7-23.90
*— — (ore smelting and refining), 7-21.90
*— liner (bricklaying), 9-51.30
*— solderer, 8-72.90
*— tapper (metal melting), 7-23.90
*— — (ore smelting and refining), 7-21.90
Furnaceman, bessemer, 7-21.50
—, blast furnace (ore smelting), 7-21.20
*—, chemical and related processes, 7-42.40
—, cupola, 7-23.30
*—, electrode baking, 7-42.90
—, glass-annealing, 8-93.30
—, glass-making, 8-93.20
*—, glass-tempering, 8-93.40
—, metal melting, except cupola, 7-23.20
—, — reheating, 7-23.40
—, non-ferrous metal converting and refining, 7-21.70
—, open-hearth (steel), 7-21.30
—, oxygen (steel converting), 7-21.40
*—, puddling, 7-21.90
*—, refuse disposal, 9-69.60
*Furniture assembler (sheet-metal), 8-73.90
*— designer, 1-62.40
*— mover, 9-71.90
— upholsterer, 7-96.20
*Furrier, 7-92.20

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*Galvaniser, 7-28.30
*Gambling-table operator, 5-99.30
*Gambreller (butchery), 7-73-90
*Game reservation worker, 6-49.90
*— warden, 6-49.90
*Gamekeeper, 6-49.90
*Games coach, 1-80.30
*Ganger (section man, railway), 9-99.10
Gantry- or bridge-crane operator, 9-73.20
*Gaoler, 5-89.30
*Garage mechanic (automobiles), 8-43.20
*Garbage man, 9-99.10

Gardener, 6-27.40
Garment cutter, except leather, 7-94.50
— —, leather, 7-94.60
— dyer, 7-56.30
— hand-sewer (except leather and fur), 7-95.20
— knitting-machine operator, 7-55.20
— marker, 7-94.40
— patternmaker, 7-94.20
*— sewer, machine, 7-95.50
Gas and electric welder (general), 8-72.10
— oil well-drilling rigger, 9-72.50
*— dispatcher (pipe lines), 3-59.90
*— engineer (production and distribution), 0-25.90
*— — (well drilling), 0-27.40
*— engineering technician (well drilling), 0-38.20
*— maker (chlorine, hydrogen, etc.), 7-49.90
*— — (coal gas), 7-49.25
— pipe fitter, 8-71.20
*— production and distribution technician, 0-36.90
*— turbine engineer, 0-24.30
— welder, 8-72.15
Gas-compressor operator, 9-69.25
*Gas-cutting-machine operator, metal, 8-72.55
*Gasser (yarn), 7-52.90
*Gatherer, glass, 8-91.90
*Gauge maker, 8-32.30
*Gear-cutting-machine operator, metalworking, 8-34.90
*— setter-operator, metalworking, 8-33.90
Gem cutter and polisher, 8-80.30
— setter, 8-80.40
*Genealogist, 1-92.90
GENERAL FARM WORKERS, 6-21
General farmer, 6-11.10
GENERAL FARMERS, 6-11
General foremen
See Supervisors and general foremen, production
General manager, 2-11.10
GENERAL MANAGERS, 2-11
*General office supervisor, 3-00.10
— physician, 0-61.05
— surgeon, 0-61.10
*General-ledger bookkeeper, 3-31.10
*Generating-plant operator (hydroelectric), 9-61.30
*— — (steam), 9-61.20
*Generator fitter, 8-51.20
*— switchboard operator (power station), 9-61.60
*Geneticist, animal, 0-52.80
*—, plant, 0-51.20
*Gentleman's man, 5-40.30
*Geodesist, 0-13.20
*Geodetic surveyor, 0-31.20
Geographer, 1-92.50
*Geography teacher (second level), 1-32.40
*— — (third level), 1-31.65
Geological scientist, 0-13.30
*Geology teacher (second level), 1-32.30
*— — (third level), 1-30.20
*— technician, 0-14.90
*Geomagnetician, 0-13.20
*Geomorphologist, 0-13.30
Geophysical scientist, 0-13.20
Germination worker (malting), 7-78.20
*Gilder, edge (bookbinding), 9-26.90
*Glaciologist, 0-13.20
GLASS AND CERAMICS KILNMEN, 8-93
GLASS AND CERAMICS PAINTERS AND DECORATORS, 8-95
Glass and ceramics technologist, 0-29.20
Glass blower, 8-91.20
*— — (scientific glass), 8-91.24
*— chemist, 0-11.30
— cutter, 8-91.56
*— — (crystal), 8-94.20
*— — (optical glass), 8-91.60
*— cutter-shaper (decorative), 8-94.90
*— driller, 8-91.90
— edge grinder, 8-91.64
— engraver, 8-94.20
GLASS ENGRAVERS AND ETCHERS, 8-94
Glass etcher, 8-94.30
— float-bath operator, 8-91.52
GLASS FORMERS, CUTTERS, GRINDERS AND FINISHERS 8-91
Glass formers, potters and related workers, 8-9
*Glass grinder (laboratory apparatus), 8-91.90
*— installer (vehicles), 9-57.60
— lens moulder, 8-91.32
— mixer, 8-99.20
— painter, 8-95.20
— plate rollerman, 8-91.44
— sandblaster, 8-94.40
*— setter, buildings, 9-57.20
*— silverer, 8-95.70
*— technician, 0-39.90
— temperer, 8-93.40
— tube bender, 8-91.80
— — maker, 8-91.76
Glass-annealing furnaceman, 8-93.30
Glass-blowing-machine operator, 8-91.28
Glass-drawing-machine operator, 8-91.40
Glass-fibre maker, 8-99.70
Glass-making furnaceman, 8-93.20
Glass-pressing-machine operator, 8-91.36
Glaze maker, 8-99.50
*Glazer, ceramics (dip), 8-95.60
Glazier, buildings, 9-57.20
—, leaded glass, 9-57.50
—, patent roofing, 9-57.30
—, plate-glass, 9-57.40
—, vehicle, 9-57.60
GLAZIERS, 9-57
*Glost placer, ceramics, 8-93.90
*Glost-kiln fireman, pottery and porcelain, 8-93.50
*— —, tile, 8-93.60
Glove cutter, except leather, 7-94.70
— —, leather, 7-94.80
*Gluer, edge (veneer sheets), 7-32.90
*Gold beater, 8-80.70
*— precipitator, 7-12.70
Goldsmith and silversmith, 8-80.50
*Golf caddie, 5-99.90
*— teacher, 1-80.30
Goods agent, railway, 3-59.35
*— loader, aircraft, 9-71.35
*— —, railway and road vehicles, 9-71.30
*— train guard, 9-84.20
Government administrator, 2-02.10
GOVERNMENT ADMINISTRATORS, 2-02
Government executive official, 3-10.10
GOVERNMENT EXECUTIVE OFFICIALS, 3-10
*Governor, government, 2-01.10
*Gown maker (throughout), 7-91.40
*Grab-bucket operator, 9-74.20
Grader and classer, fibre, 7-51.15
*—, fur, 7-92.40
—, hide and skin, 7-61.20
*—, meat, 7-73.90
—, pelt, 7-62.20

*Grader, sole, 8-02.40
—, stone, 8-20.30
—, tobacco, 7-81.20
—, wood, 7-32.70
*Grain farmer, 6-12.20
— miller, 7-71.20
GRAIN MILLERS AND RELATED WORKERS, 7-71
*Granite polisher, 8-20.20
*Granulator operator (sugar refining), 7-72.90
*Gravedigger, 9-99.10
*Graving dock master, 9-89.20
*Grazier, 6-12.40
Greaser and oiler (except ships' engines), 8-49.80
*—, ship, 9-82.30
*Green coffee blender, 7-77.30
*Greenhouse worker (market garden), 6-27.20
*— — (nursery), 6-27.30
*Greenkeeper, 6-29.60
*Greyhound trainer, 6-24.90
*Grinder (chemical and related processes), 7-41.30
*— (chocolate making), 7-76.50
*—, clay, 8-99.30
—, glass edge, 8-91.64
*—, glaze, 8-99.50
*—, grain milling, 7-71.20
—, machine-tool, 8-35.30
*—, mustard milling, 7-71.90
*—, plastics, 9-01.90
*—, rice milling, 7-71.30
*—, snuff, 7-89.20
*—, spice milling, 7-71.40
*—, stone, 8-20.20
—, sugar-cane, 7-72.20
—, textile card, 8-35.60
—, wood, 7-33.20
Grinding-machine operator, lens, 8-91.68
*— —, precision metalworking, 8-34.65
*— setter-operator, precision metalworking, 8-33.70
*Groom, 6-24.90
*Groover, tire, 9-02.90
*Ground hostess (airport), 3-94.90
*Groundlayer, ceramics decorating, 8-95.90
*Groundnut farm worker, 6-22.90
*— farmer, 6-12.20
Groundsman, 6-29.60
*Grove worker, 6-23.20
Growers
See Farmers
*Grubber and clearer, 9-99.10
*Guard, freight train, 9-84.20
—, prison, 5-89.30
*—, private police force, 5-82.40
*Guest-house keeper (working proprietor), 5-10.40
*— manager, 5-00.90
*Guide, alpine, 5-91.90
*—, fishing or hunting, 5-91.90
*—, industrial or other establishment, 5-91.90
—, sightseeing, 5-91.30
—, travel, 5-91.20
GUIDES, 5-91
*Guitarist, 1-71.40
Gunsmith, 8-39.20
*Gut stripper, 7-73.90
*Gut-string maker, 9-49.90
*Gynaecologist, 0-61.20
*Gyratory breaker operator, 7-12.80

H

*Haematology technician, 0-54.30
*Hairdresser, men's, 5-70.30
—, women's, 5-70.20
HAIRDRESSERS, BARBERS, BEAUTICIANS AND RELATED WORKERS, 5-70
*Hall porter, hotel, 5-40 55
*Hammer driver, forge, 8-31.90
*Hammer-mill operator (grain milling), 7-71.20
*— — (rice milling), 7-71.30
*— — (spice milling), 7-71.40
*Hammerman, forging, 8-31.90
*—, precious-metal articles, 8-80.90
Hammersmith, 8-31.20
Hand and machine sewer (general), 7-95.10
— compositor, 9-21.20
— dipper, 9-39.40
— embroiderer, 7-95.60
— knitter, 7-55.50
— packer, 9-71.50
— riveter, 8-74.60
*— tufter (carpet weaving), 7-54.90
*Handbook writer, 1-59.65
*Handicapped, teacher of the
See Teachers, special education
*Handler, pottery, 8-92.90
*Handtruck man, 9-99.10
*Handyman, building maintenance, 9-59-20
*—, labourer, 9-99.10
*Harbour policeman, 5-82.20
Hardener, 7-26.30
*Hardening-machine operator (felt hoods), 7-59.90
*Harness maker, 8-03.20
*Harness setter (textile weaving), 7-53.20
*Harpooner (whale), 6-49.40
*Harvest hand (field crops), 6-22.90
*— — (general), 6-21.10
*— — (orchard), 6-23.90
*Harvesting-machine operator (agriculture), 6-28.20
*— — (forestry), 6-31.90
Hat and cap patternmaker, 7-94.30
*— — sewer, hand, 7-95.90
*— finisher, 7-93.90
*— sewer, machine, 7-95.50
*— trimmer, 7-93.90
Hat-blocking machine operator, 7-93.30
*Hat-check girl, 5-99.90
*Hatcher and breeder, poultry, 6-12.60
*Hatchery worker, fish, 6-49.20
— —, poultry, 6-26.20
*Hatter's fur chopper, 7-62.90
*Hawker, 4-52.20
Head cook, 5-31.20
— teacher, 1-39.40
— waiter, 5-32.20
*Headmaster (approved school), 1-93.40
*Healer, drugless treatment, 0-79.90
—, faith, 1-49.20
*Health statistician, 0-81.30
*— visitor, 0-71.30
Heat physicist, 0-12.30
Heating and ventilation equipment operator, 9-69.80
—, ventilation and refrigeration engineer, 0-24.80
—, — refrigeration engineering technician, 0-35.50
*Heel attacher, 8-02.90
*— builder, 8-02.90
*— burnisher, 8-02.55
*Helicopter pilot (air transport), 0-41.20
*Helmet maker, 7-93.90
*Heraldic stamper (printing), 9-29.90
*Herbalist, 0-79.90

Hide and skin grader, 7-61.20
— flesher and dehairer (hand), 7-61.30
— — and dehairer (machine), 7-61.35
— splitter, 7-61.40
*— tanner, 7-61.45
*— washer, 7-61.90
*Hide-splitting machine operator, 7-61.40
High climber (logging), 6-31.30
*— commissioner, government, 2-02.10
*— court judge, 1-22.10
*High-speed printer operator (electronic data-processing), 3-42.90
*High-wire artist, 1-75.90
Highway and street construction engineer, 0-22.30
*— lane marker, 9-39.90
*— patrolman, 5-82.20
*Histologist, animal, 0-51.30
*—, plant 0-51.20
*Histopathologist, 0-52.60
Historian, 1-92.60
*History teacher (second level), 1-32.40
*— — (third level), 1-31.65
*Hod carrier, 9-99.10
Hoist operator (construction), 9-73.35
— — (mine), 9-73.40
Hoisting equipment rigger (construction), 9-72.20
— — rigger (general), 9-72.05
*Home economics teacher, 1-31.90
— economist, 1-99.30
*Home-help organiser, 1-93.90
*Homogeniser-operator (dairy products), 7-75.90
Honing-machine operator, 8-34.70
— setter-operator, 8-33.80
Hood former, felt, 7-59.50
*Hop farm worker, 6-23.90
*— farmer, 6-12.30
*Horizontal boring-machine operator, metalworking, 8-34.50
*— — setter-operator, metalboring, 8-33.50
*— drilling-machine operator, metalworking, 8-34.60
*— — setter-operator, metalworking, 8-33.60
*— glass-drawing-machine operator, 8-91.40
*Horse driver, road transport, 9-86.20
*Horse-breaker, 6-24.90
Horticultural farmer, 6-12.70
*— technician, 0-54.90
Horticulturist, 0-53.30
*Hosiery dyer, 7-56.90
— knitting-machine operator, 7-55.30
*Hospital aid, 5-99.40
*— pharmacist, 0-67.10
*Hostel manager, 5-00.90
*Hostess, aircrew, 5-99.70
*—, airport, 3-94.90
*—, bus, 5-40.90
*—, club, 5-99.90
*—, train, 5-40.90
*Hot strip mill roller, 7-22.20
*Hot-cell technician, 7-49.40
Hot-dip plater, 7-28.30
*Hot-plate plywood press operator, 7-32.60
*Hot-press operator, forging, 8-31.40
Hot-roller (steel), 7-22.20
*Hot-room attendant (bath), 5-70.70
Hotel and restaurant manager, 5-00.20
*— baggage porter, 5-99.90
— concierge, 5-40.55
*— keeper (working proprietor), 5-10.20
— receptionist, 3-94.20
*House agent, 4-41.30
*— detective, 5-89.20
*— painter, 9-31.20
— steward, 5-20.40
Housebuilder (general), 9-59.10
*Housefather, 1-93.20
Housekeeper (except private service), 5-20.20
— (private service), 5-20.30
HOUSEKEEPING AND RELATED SERVICE SUPERVISORS, 5-20
Housekeeping matron, 5-20.60
Housemaid, 5-40.20
*Houseman, hotel, 5-52.90
*Housemaster (approved school), 1-93.40
*Housemother, 1-93.20
*Hovercraft conductor, 3-60.90
*— pilot, 0-42.90
*Huller (grain milling), 7-71.90
*Hunter (except whale or seal), 6-49.60
—, seal, 6-49.50
—, whale, 6-49.40
*Hunting guide, 5-91.90
*Husking-machine operator (grain milling), 7-71.90
*Hydraulic systems mechanic, aircraft, 8-44.90
Hydraulics engineer, 0-22.55
*Hydrobiologist, 0-51.90
*Hydrodynamicist, 0-12.20
Hydroelectric station operator, 9-61.30
*Hydrogen-gas maker, 7-49.90
Hydrogenation operator (oils and fats), 7-79.30
Hydrographic surveyor, 0-31.40
*Hydrologic engineer, 0-22.55
*Hydrologist, 0-13.20
*Hypnotist, 1-79.90

I

Ice-cream maker, 7-75.50
*Ice maker, 9-69.70
*Ichthyologist, 0-51.30
*Illumination engineer, 0-23.90
*— technician, 0-34.90
*Illusionist, 1-75.30
Illustrator, technical, 0-32.70
*Imam, 1-41.20
*Immigration officer, 3-10.10
*Impersonator, 1-73.90
*Import manager, 4-00.20
*Importer (working proprietor), 4-10.20
Imposer (printing), 9-21.50
*Impregnating-machine operator (paper making), 7-34.90
*— — (rubber), 9-01.90
*Impregnator (wood treating), 7-31.30
*Impresario, 1-74.20
Incinerator plant operator, 9-69.60
*Incising-machine operator (wood treating), 7-31.90
*Incubator operator, 6-26.20
*Index clerk, 3-95.30
Industrial and commercial products designer, 1-62.40
— arts teacher (third level), 1-31.80
*— bacteriologist, 0-52.50
*— design teacher (third level), 1-31.80
*— diamond cutter and polisher, 8-80.30
— efficiency engineer (general), 0-28.10
— electronic equipment fitter, 8-52.50
INDUSTRIAL ENGINEERS, 0-28
Industrial machinery and tools engineer, 0-24.20
*— pharmacist, 0-11.90
*— photographer, 1-63.30
*— psychologist, 1-92.30
— relations and personnel manager, 2-19.80

*Industrial relations officer, 1-94.20
*— sociologist, 1-92.20
*— technology teacher, 1-31.80
*— truck operator, 9-79.20
*Information clerk, 3-94.90
*Ingot mould-cover liner, 9-51.90
Injection-moulding-machine operator, plastics, 9-01.50
Inland and coastal waters fisherman, 6-41.30
Inlayer, marquetry, 8-19.65
*Innkeeper (working proprietor), 5-10.20
Inorganic chemist, 0-11.30
*Inquiries clerk, 3-94.90
Inquiry agent, private, 5-89.20
*Inseminator, artificial (livestock), 6-24.90
*—, — (poultry breeding), 6-26.90
Inspector and tester, electrical and electronic products, 8-59.20
— —, mechanical products, 8-49.85
*—, child care, 1-93.90
*—, fabrics, 7-54.70
*—, government administration, 3-10.10
—, quality, 9-49.80
—, railway transport service, 3-59.30
—, road passenger transport service, 3-59.45
—, school, 1-39.50
*Installation electrician, buildings, 8-55.20
Installer and erector, machinery, 8-41.75
*— mechanic, refrigeration and air-conditioning equipment, 8-41.80
Installer, telephone and telegraph, 8-56.20
*Instructor
  See Introduction; code to craft; Teachers
*— (sport), 1-80.30
—, flying, 0-41.60
*Instrument assembler (precision instruments), 8-42.40
*— engineer (mechanical), 0-24.90
— fitter, electrical, 8-51.50
*— — electronics, 8-52.90
*— maker and repairer (optical instruments), 8-42.35
*— — repairer (precision instruments), 8-42.30
*— — repairer (scientific, surgical or dental instruments, 8-42.90
*— man (surveying), 0-33.30
*Instrument-case maker, 8-11.90
Instrumentalist, 1-71.40
*Instrumentation engineer (electronic), 0-23.90
*— technician (electronic), 0-34.90
*— — (mechanical), 0-35.90
Insulator, acoustical, 9-56.40
—, boiler and pipe, 9-56.50
—, building (hand), 9-56.20
—, — (machine), 9-56.30
—, refrigeration and air-conditioning equipment, 9-56.60
INSULATORS, 9-56
*Insurance agent, 4-41.20
*— broker, 4-41.20
*— claims section supervisor, 3-00.90
— clerk, 3-93.50
— salesman, 4-41.20
*— underwriter, 1-99.50
INSURANCE, REAL ESTATE AND SECURITIES SALESMEN, 4-41
Insurance, real estate, securities and business services salesmen and auctioneers, 4-4
*Intaglio cutter (glass engraving), 8-94.20
*Interest-accrual bookkeeper, 3-31.20
Interior decoration designer, 1-62.30
Internal combustion engine fitter-assembler (except aircraft and marine engines), 8-41.15
*— — motor engineer, 0-24.30
*Internal grinding-machine operator, metalworking, 8-34.65
*— — setter-operator, metalworking, 8-33.70
*International affairs teacher, 1-31.65
*— trade economist, 0-90.20
Interpreter, 1-95.40
*Intertype operator, 9-21.30
*Inventory clerk, furniture depository, 3-91.90
*— clerk, stock control, 3-91.30
*Investigator (private), 5-89.20
*Investment broker, 4-41.40
*— clerk, 3-39.40
*Invoice clerk, 3-39.90
*— section supervisor, 3-00.90
*— typist, 3-21.40
*Invoicing-machine operator, 3-41.20
*Inward-freight clerk, 3-91.20
*Ironer, hand, 5-60.70
*—, machine, 5-60.60
*— shoe finishing, 8-02.55
*Irrigation engineer, 0-22.55
Irrigator, 6-29.50
*Ivory carver, 9-49.90

J

*Jackhammer driller (mine and quarry), 7-11.30
Jacquard card cutter, 7-53.50
*— — lacer, 7-53.90
*— carpet weaver, 7-54.60
— design copyist, 7-53.40
*— lace weaver, 7-54.50
*— loom fixer, 7-53.20
— weaver, 7-54.45
Janitor, 5-51.30
*Jarring-machine moulder, 7-25.40
*Jazz singer, 1-71.45
*Jet motor engineer, 0-24.30
*Jewel cutter and polisher, 8-80.30
*— setter, 8-80.40
Jeweller (general), 8-80.10
Jewellery and precious metal workers, 8-8
JEWELLERY AND PRECIOUS METAL WORKERS, 8-80
*Jewellery designer, 1-61.90
*— enameller, 8-80.90
— engraver, 8-80.80
*— mounter, 8-80.90
— repairer, 8-80.20
*— soldering-machine operator, 8-72.90
Jib-crane operator (stationary), 9-73.25
Jig and gauge maker, 8-32.30
*— maker, plastics, 9-01.80
— tender, 7-12.50
Jiggerman, pottery and porcelain, 8-92.30
*Jigsaw operator, 8-12.20
*Job analyst, 1-94.40
*— printer, 9-21.10
*Jobber, stock, 4-41.90
*Jobbing gardener, 6-27.40
*Jockey, 1-80.20
Joiner, aircraft, 9-54.60
*—, bench, 9-54.70
—, construction, 9-54.20
*—, general, 9-54.10
*—, ship, 9-54.45
Jointer, electric cable, 8-57.50
*—, pipe-laying, 9-59.50
*Jollier, pottery and porcelain, 8-92.30
*Jolting-machine moulder, 7-25.40
*Journalism teacher, 1-31.70

Journalist, 1-59.15
Judge, 1-22.10
*— (sport), 1-80.40
*Judge's clerk, 3-93.40
JUDGES, 1-22
*Juggler, 1-75.90
Jurist (except lawyer or judge), 1-29.10
Jurists, 1-2
*Justowriter operator, 3-21.90
*Jute farm worker, 6-22.90
*— farmer, 6-12.20

K

*Keeper, lighthouse, 9-89.40
*—, lock, 9-89.30
*—, sports grounds, 6-29.60
*—, zoo, 6-24.90
*Kennel keeper (working proprietor), 6-12.40
*— worker, 6-24.90
*Kettle operator (chemical and related processes), 7-42.20
*Key maker, piano, 9-41.70
*Key-punch operator, 3-22.20
*Kibbler, cocoa-bean, 7-77.90
*Kiln bricklayer, 9-51.30
*— emptier, ceramics, 8-93.90
*— operator (charcoal burning), 7-49.30
*— — (chemical and related processes), 7-42.40
*— — (wood seasoning), 7-31.20
*— setter-in, ceramics, 8-93.90
Kilnman, brick and tile, 8-93.60
—, malting, 7-78.25
—, pottery and porcelain, 8-93.50
Kindergarten teacher, 1-34.20
*Knacker, 7-73.90
*Knife sharpener, itinerant, 8-35.90
Knitter, hand, 7-55.50
— (hand-operated machine), 7-55.40
KNITTERS, 7-55
Knitting-machine operator (garment), 7-55.20
— — (hosiery), 7-55.30
*— — (milanese, raschel, tricot), 7-55.90
— setter, 7-53.30
*Knitwear dyer, 7-56.90
*Kosher cutter, 7-73.20

L

*Laboratory animal raiser, 6-12.40
*— technician, biology, 0-54.20
*— —, chemistry, 0-14.20
*— —, medical, 0-54.30
*— —, physics, 0-14.30
*Labour conciliator, 1-94.20
*— economist, 0-90.20
Labourer, 9-99.10
*— (general), 9-99.10
*— (mining and quarrying), 7-11.90
Lace weaver (machine), 7-54.50
*Lace-making-machine operator, 7-54.50
*Lacing-machine operator (Jacquard cards), 7-53.90
*Ladder maker (wood), 8-19.90
*Ladies' hairdresser, 5-70.20
*Ladleman (metal casting), 7-24.20
*Ladler, glass, 8-91.90
*Lady's companion, 5-40.40
*— maid, 5-40.30
*Lagger, boiler and pipe, 9-56.50
*Laminated glass worker, 8-91.90
*Laminating-machine operator (paper making), 7-34.90
Laminator, plastics, 9-01.65
Land surveyor, 0-31.20
Landscape architect, 0-21.40
*— artist, 1-61.30
Languages and literature teacher (second level), 1-32.15
*— — teacher (third level), 1-31.70
*Lapidary, 8-80.30
Lapper, fibre, 7-51.40
*Lapping-machine operator (metalworking), 8-34.90
*— operator (textile fibres), 7-51.40
*— setter-operator (metalworking), 8-33.90
Laster, 8-02.45
*Lasting-machine operator, 8-02.45
*Latex treater, 7-49.90
Lathe operator, 8-34.20
*— —, glass, 8-91.90
*— —, metal spinning, 8-39.40
— —, stone, 8-20.50
*— —, veneer cutting, 7-32.40
*— —, wood turning, 8-12.30
— setter-operator, 8-33.20
— —, (woodworking), 8-12.40
*Lather (plastering), 9-55.90
Launderer (general), 5-60.10
LAUNDERERS, DRY-CLEANERS AND PRESSERS, 5-60
Laundering-machine operator, 5-60.20
Laundry pressing-machine operator, 5-60.60
*Lavatory attendant, 5-99.90
*Law clerk, 3-93.40
*— teacher, 1-31.50
Lawyer, 1-21.10
LAWYERS, 1-21
*Lay worker, 1-49.90
*Layer-on, printing press, 9-22.90
*Layout engineer, 0-28.90
— man, stonework, 8-20.40
*Lead blender (petroleum refining), 7-45.60
— burner, 8-72.40
*Lead-light fixer, 9-57.50
*Lead-oxide maker, 7-49.90
Leaded glass glazier, 9-57.50
*Leaf conditioner (tobacco), 7-81.40
— maker, precious metal, 8-80.70
*Leaf-stripping-machine operator (tobacco), 7-81.60
*Leakman, paraffin plant, 7-45.70
*Leather chemist, 0-11.20
— currier, 7-61.50
— cutter, 8-03.30
*— dyer (vat), 7-61.55
— — and stainer, 7-61.55
*— — stainer (hand), 7-61.90
*— — stainer (spray), 7-61.90
— garment cutter, 7-94.60
— — hand sewer, 7-95.30
— glove cutter, 7-94.80
— goods assembler, 8-03.60
— — maker (general), 8-03.10
LEATHER GOODS MAKERS, 8-03
Leather sewer, hand, 8-03.40
— —, hand (garments), 7-95.30
— —, machine, 8-03.50
*— —, machine (garments and gloves), 7-95.50
*— stretcher, 7-61.90
*— tanner, 7-61.45
*— technician, 0-39.90
*— technologist, 0-29.90
*Leather-buffing-machine operator, 7-61.90
*Leather-polishing-machine operator, 7-61.90

*Lecturers
See Teachers
*Ledger clerk, 3-31.20
*Legal adviser, 1-29.10
— clerk, 3-93.40
Legislative official, 2-01.10
LEGISLATIVE OFFICIALS, 2-01
Legislative officials and government administrators, 2-0
*Lehr attendant, 8-93.30
Lens grinding-machine operator, 8-91.68
— moulder, glass, 8-91.32
— polishing-machine operator, 8-91.72
Letter cutter, stone (hand), 8-20.60
*Letterer, signwriting, 9-39.50
*Letterpress operator (cylinder), 9-22.20
*— — (platen), 9-22.25
* — (rotary), 9-22.30
*Lexicologist, 1-95.20
Librarian, 1-91.20
LIBRARIANS, ARCHIVISTS AND CURATORS, 1-91
*Librarianship teacher, 1-31.90
LIBRARY AND FILING CLERKS, 3-95
Library clerk, 3-95.20
*Life sciences teacher (third level), 1-31.30
LIFE SCIENCES TECHNICIANS, 0-54
Life scientists and related technicians, 0-5
*Life-guard, 5-89.90
*Lifeboatman, 9-81.90
*Lift attendant, 5-99.90
Lifting-truck operator, 9-79.20
Light physicist, 0-12.40
*Lighterman, 9-81.90
Lighthouse man, 9-89.40
*Lightshipman, 9-81.90
Lineman, electric power, 8-57.20
*—, — power (underground), 8-57.90
—, — traction, 8-57.30
—, telephone and telegraph, 8-57.40
*Lingerie maker (throughout), 7-91.90
*Lining-machine operator, cardboard, 9-10.40
*Linisher, metalworking (hand), 8-35.90
*—, — (machine), 8-35.20
*Link- and link-knitting machine operator (garment), 7-55.20
Linoleum maker, 9-49.30
Linotype operator, 9-21.30
*Lion tamer, 1-75.90
*Liquefaction-plant operator (liquefied gases), 7-49.90
*Liqueur maker, 7-78.90
*Listing clerk, 3-93.90
*Literary agent, 1-99.90
*— critic, 1-51.30
*Literature teacher (second level), 1-32.15
*— — (third level), 1-31.70
*Lithographer (ceramics decorating), 8-95.40
Lithographic artist, 0-32.80
*— pressman (direct litho), 9-22.50
*— pressman (offset), 9-22.40
— stone engraver, 9-24.15
*— transferrer, 9-24.50
*— tuscher, 9-24.90
Livestock farmer, 6-12.40
— worker (general), 6-24.10
LIVESTOCK WORKERS, 6-24
Load dispatcher (electric power), 9-61.70
Loader, aircraft, 9-71.35
*—, boat and ship (except liquids and gases), 9-71.20
*—, — ship (liquids and gases) 9-71.40
—, railway and road vehicle, 9-71.30
Lock operator (canal or port), 9-89.30
Locksmith, 8-39.30
*Locomotive crane operator, 9-73.90
*— driver, 9-83.20
*— —, mine and quarry, 9-83.60
*— driver's assistant, 9-83.40
*— fireman, 9-83.30
*— (steam) engineer, 0-24.30
*Lodging-house keeper (working proprietor), 5-10.90
*Loftsman, 8-74.20
*Log chipper (machine), 7-33.30
*— scaler, 6-31.90
*Log-raft maker, 6-31.40
Logger (general), 6-31.10
LOGGERS, 6-31
*Longshoreman, 9-71.20
*Lookout man (forest fire), 6-32.50
Loom fixer, 7-53.20
*— operator, carpet weaving, 7-54.60
*— —, cloth weaving, except Jacquard looms, 7-54.40
*— —, lace making, 7-54.50
*— —, Jacquard, 7-54.45
— threader (hand), 7-54.20
— — (machine), 7-54.25
Lorry and van driver (local transport), 9-85.50
— — driver (long-distance transport), 9-85.60
*— loader, 9-71.30
*Loss assessor, 4-43.30
*Lubrication engineer, 0-24.90
*— engineering technician, 0-35.90
*Lubricator (except ships' engines), 8-49.80
*Ludlow casting-machine operator, 9-21.40
*Lumber-carrier driver, 9-79.50
*Lumberjack, 6-31.10
*Lyric writer, 1-59.90

M

Macaroni maker, 7-76.40
Machine and hand sewer (general), 7-95.10
— embroiderer, 7-95.70
— labeller, 9-71.60
— packer, 9-71.55
— riveter, 8-74.65
— setter, metalworking (general), 8-33.05
— setter-operator, metalworking, (general), 8-33.10
Machine-tool fitter-assembler, metalworking, 8-41.35
— operator (general), 8-34.10
MACHINE-TOOL OPERATORS, 8-34
MACHINE-TOOL SETTER-OPERATORS, 8-33
Machinery and tools engineer, industrial, 0-24.20
— erector and installer, 8-41.75
— fitter (general), 8-41.05
— fitter-assembler (general), 8-41.10
MACHINERY FITTERS AND MACHINE ASSEMBLERS, 8-41
Machinery fitters, machine assemblers and precision-instrument makers (except electrical), 8-4
Machinery mechanic (general), 8-49.10
Magician, 1-75.30
*Magistrate, police court, 1-22.10
*Magnetic separator (ores), 7-12.90
*Magneto fitter, 8-51.20
*Mahout, 9-86.90
*Maid, except private service, 5-40.50
*—, kitchen, 5-40.90
*—, linen, 5-40.90
*—, personal, 5-40.30
*—, private service, 5-40.20
*—, parlour, 5-40.90

MAIL DISTRIBUTION CLERKS, 3-70
Mail sorting clerk, 3-70.20
*Mail-order store manager, 4-00.30
*Mail-van driver, 9-85.90
*Mailman, 3-70.30
*Mails supervisor, 3-59.80
*Mains layer and jointer, 9-59.50
*Maintenance carpenter, 9-54.90
— electrician, 8-55.60
*— fitter, 8-49.70
— foreman, workshop *See* Supervisors and general foremen, production
— man, buildings, 9-59.20
*_Maître d'hôtel_, 5-32.20
*Maize farmer, 6-12.20
Make-up man (stage and studio), 5-70.60
*Maker-up, photo-type-setting, 9-21.90
—, printing, 9-21.45
Malt cooker, 7-78.30
*— fireman, 7-78.25
*Malt-vinegar maker, 7-78.70
*Maltster, 7-78.20
*Mammalogist, 0-51.30
*Manager, accounting and budgeting department, 2-19.50
—, administration, 2-19.40
*—, advertising department, 2-19.90
*—, budgeting and accounting department, 2-19.50
—, development and research, 2-19.20
—, farm, 6-00.20
—, general, 2-11.10
—, hotel and restaurant, 5-00.20
—, industrial relations and personnel, 2-19.80
—, production (except farm), 2-12.10
*—, public relations department, 2-19.90
*—, purchasing department, 2-19.90
*—, regional (transport), 2-19.60
—, research and development, 2-19.20
—, retail trade, 4-00.30
—, sales (except wholesale and retail trade), 2-19.30
*—, supplies department, 2-19.90
*—, transport operations department, 2-19.60
*—, warehousing department, 2-19.90
—, wholesale trade, 4-00.20
Managers, 2-1
MANAGERS (CATERING AND LODGING SERVICES), 5-00
MANAGERS (WHOLESALE AND RETAIL TRADE), 4-00
*Managing director, 2-11.10
Manicurist, 5-70.50
Manipulator (rolling mill), 7-22.70
*Mannequin, 4-51.40
*Manservant, 5-40.30
*Manufacturer's representative (sales), 4-32.30
Manufacturers' agent, 4-32.30
*Map maker, 0-32.60
*Maple syrup tapper, 6-29.40
*Marble polisher, 8-20.20
— setter, 9-51.45
*Marbler, edge (bookbinding), 9-26.90
*Margarine process worker, 7-79.90
*Marine architect, 0-24.50
*— biologist, 0-51.90
*— cartographer, 0-32.60
— engine fitter-assembler, 8-41.25
— engineer, 0-24.40
— — officer, 0-43.20
*— engineering technician, 0-35.20
— pipe fitter, 8-71.30
— superintendent (deck), 0-42.50
Marine superintendent (technical), 0-43.30
*— surveyor, 0-31.40
*Marker, garment cutting, 7-94.40
*—, glass engraving, 8-94.90
*—, goods (machine), 9-71.60
*—, laundry, 5-60.90
—, metal, 8-32.50
—, sheet-metal, 8-73.20
—, structural metal, 8-74.20
*—, woodworking, 8-19.90
Market garden worker, 6-27.20
*— gardener (working proprietor), 6-12.70
— research analyst, 0-90.30
Marquetry inlayer, 8-19.65
*Mash-tub man (malt preparation), 7-78.30
*Mashman (yeast production), 7-78.40
*Mason, monumental, 8-20.80
*—, paving, 9-51.60
—, stone (construction), 9-51.40
*—, stucco, 9-55.30
Masseur, 0-76.40
*Mast and spar maker, wood, 9-54.90
Master, ship's (inland waterways), 0-42.20
—, ship's (sea), 0-42.15
*Masticator operator, rubber, 9-01.20
*Match-making-machine operator, 9-49.90
*Matcher, fur, 7-92.40
*Mate, ship's, 0-42.30
MATERIAL AND PRODUCTION PLANNING CLERKS, 3-92
Material handling and related equipment operators, dockers and freight handlers, 9-7
Material planning clerk, 3-92.20
Mathemical statistician, 0-81.20
*— technician, 0-84.90
Mathematician (applied mathematics), 0-82.30
— (pure mathematics), 0-82.20
MATHEMATICIANS AND ACTUARIES, 0-82
Mathematics teacher (second level), 1-32.20
*— — (third level), 1-31.40
*Matron, nursing, 0-71.10
Matron-housekeeper, 5-20.60
*Mattress cutter, 7-94.90
— maker, 7-96.40
*— patternmaker, 7-94.90
*— sewer, hand, 7-95.90
*— —, machine, 7-95.50
*Mayor, 2-01.10
Meat and fish smoker, 7-74.60
*— boner, 7-73.90
*— butcher (general), 7-73.10
*— curer, 7-74.50
— cutter, 7-73.30
*— dresser (general), 7-73.10
*— grader, 7-73.90
*— porter, 9-71.45
*— trimmer, 7-73.90
*Meat-preserving cook, 7-74.10
*Mechanic and installer, refrigeration and air-conditioning equipment, 8-41.80
—, agricultural machinery, 8-49.55
—, aircraft engine (general), 8-44.10
—, — engine service, 8-44.20
—, automobile, 8-43.20
*—, bus, 8-43.90
*—, dental, 8-42.50
—, diesel engine (except motor vehicle), 8-49.20
—, earth-moving equipment and construction machinery, 8-49.60
*—, industrial machinery (general), 8-49.10

Mechanic, metalworking machine-tool, 8-49.30
—, mining machinery, 8-49.35
—, motor-cycle, 8-43.40
—, motor-truck, 8-43.30
—, office machines, 8-49.65
—, plant maintenance, 8-49.70
—, printing machinery, 8-49.40
—, radio and television, 8-54.20
—, reciprocating steam-engine, 8-49.15
*—, ship, 8-49.90
—, telephone and telegraph, 8-56.30
—, textile machinery, 8-49.45
*—, tractor, 8-43.90
*—, trucks, 8-43.30
—, turbine (except aircraft and marine turbines), 8-49.25
—, woodworking machinery, 8-49.50
Mechanical draughtsman, 0-32.20
*— engineer (aeronautical), 0-24.60
*— — (automotive), 0-24.70
— — (general), 0-24.10
*— — (heating, ventilation and refrigeration), 0-24.80
*— — (industrial machinery and tools), 0-24.20
*— — (marine), 0-24.40
— — (motors and engines, except marine), 0-24.30
*— — (nuclear power), 0-24.85
— engineering technician (general), 0-35.10
— — technician (motors and engines), 0-35.20
MECHANICAL ENGINEERING TECHNICIANS, 0-35
MECHANICAL ENGINEERS, 0-24
Mechanical products inspector and tester, 8-49.85
*— shovel operator, 9-74.20
Mechanics physicist, 0-12.20
Medical assistant, 0-62.10
MEDICAL ASSISTANTS, 0-62
*Medical bacteriologist, 0-52.50
*— consultant (insurance), 0-61.90
MEDICAL DOCTORS, 0-61
Medical pathologist, 0-52.60
*— photographer, 1-63.90
*— practitioner (general), 0-61.05
*— science teacher, 1-31.30
— — technician, 0-54.30
*— service physician (schools), 0-61.90
*— social worker, 1-93.20
*— therapy teacher, 1-31.75
— X-ray technician, 0-77.10
MEDICAL X-RAY TECHNICIANS, 0-77
Medical, dental, veterinary and related workers, 0-6/0-7
*Member of parliament, 2-01.10
*Men's hairdresser, 5-70.30
*Mental welfare worker, 1-93.50
*Mentally handicapped, teacher of the, 1-35.40
*Merchandise buyer (wholesale or retail trade), 4-22.20
*Merchant, wholesale (working proprietor), 4-10.20
*Merry-go-round operator, 5-99.90
*Mess cook (ship), 5-31.50
*— steward, 5-32.10
Messenger, 3-70.40
*Metal aircraft fitter-assembler, 8-41.85
METAL ANNEALERS, TEMPERERS AND CASE-HARDENERS, 7-26
Metal bluer, 7-29.20
METAL CASTERS, 7-24
Metal cleaner, 7-29.40
*— cutter, electric arc (machine), 8-72.90
*— —, flame (hand), 8-72.50
*— —, flame (machine), 8-72.55
METAL DRAWERS AND EXTRUDERS, 7-27
*Metal dresser, 7-29.30
— engraving etcher, 9-24.60
— former (hand), 8-39.50
METAL GRINDERS, POLISHERS AND TOOL SHARPENERS, 8-35
Metal marker, 8-32.50
METAL MELTERS AND REHEATERS, 7-23
METAL MOULDERS AND COREMAKERS, 7-25
Metal pattern maker (foundry), 8-32.40
METAL PLATERS AND COATERS, 7-28
Metal pourer, 7-24.20
— printing plate, roller and die engraver (hand), 9-24.20
— — roller engraver (machine), 9-24.40
Metal processers, 7-2
*Metal products assembler, 8-49.90
METAL ROLLING-MILL WORKERS, 7-22
Metal roofer, 9-53.50
— shipwright, 8-74.50
METAL SMELTING, CONVERTING AND REFINING FURNACEMEN, 7-21
Metal spinner, 8-39.40
— sprayer, 7-28.50
— wind-instrument maker, 9-41.40
Metal-bending-machine operator, 8-39.70
*Metal-boring-machine operator, 8-34.50
*— setter-operator, 8-33.50
*Metal-buffing-and-polishing-machine operator, 8-35.20
*Metal-drilling-machine operator, 8-34.60
*— setter-operator, 8-33.60
*Metal-grinding-machine operator, 8-34.65
*— setter-operator, 8-33.70
*Metal-honing-machine setter-operator, 8-33.80
*Metal-milling-machine operator, 8-34.30
*— setter-operator, 8-33.50
Metal-mining engineer, 0-27.30
*—technician, 0-38.90
*Metal-planing-machine operator, 8-34.40
*— setter-operator, 8-33.40
Metal-press operator, 8-39.60
*Metal-reamer operator, 8-34.60
*— setter-operator, 8-33.60
Metal-sawing-machine operator, 8-34.75
*Metal-shaping-machine operator, 8-34.90
*— setter-operator, 8-33.90
*Metallurgical chemist, 0-11.30
— technician, extractive, 0-37.20
— —, physical, 0-37.30
METALLURGICAL TECHNICIANS, 0-37
Metallurgist, extractive, 0-26.20
—, physical, 0-26.30
*—, radioactive minerals, 0-26.90
METALLURGISTS, 0-26
*Metalwork teacher, 1-32.80
*Metalworking automatic transfer-machine operator, 8-34.80
*— lathe operator, 8-34.20
*— — setter-operator, 8-33.20
— machine setter (general), 8-33.05
— — setter-operator (general), 8-33.10
— machine-tool fitter-assembler, 8-41.35
— — mechanic, 8-49.30
*— machine-tool operator (general), 8-34.10
*— numerical-control-machine setter-operator, 8-33.85
*Meteorological electronic equipment fitter, 8-52.90
*— instrument maker, 8-42.30
— scientist, 0-13.40
Methods engineer, 0-28.20
*Microbiologist, 0-52.50
*Microelectronics assembler, 8-53.90

*Micropalaeontologist, 0-13.30
*Microphone operator, 8-62.30
*Microphotographer, 1-63.90
Midwife, auxiliary, 0-74.10
—, professional, 0-73.10
*Migrant farm worker (general), 6-21.10
*Milch goat farm hand, 6-25.90
*Military science instructor, 1-31.90
Milk farmer, 6-12.50
*— process worker, 7-75.90
*— producer (farm), 6-12.50
*Milker (hand), 6-25.90
*Milking-machine operator, 6-25.20
Miller, grain, 7-71.20
*—, mustard, 7-71.90
*—, oil-seed, 7-79.20
—, rice, 7-71.30
*—, snuff, 7-89.20
—, spice, 7-71.40
Miller-grinder (chemical and related processes), 7-41.30
Milliner, 7-93.20
MILLINERS AND HATMAKERS, 7-93
Milling-machine operator, 8-34.30
— setter-operator, 8-33.30
*Millman, clay, 8-99.30
—, rubber, 9-01.20
*Millwright, 8-49.70
*Mimeographer, 3-99.50
Mine and quarry brakeman, 9-84.50
— cageman, 9-73.45
*— carpenter (rough carpentry), 9-54.90
*— electrician, 8-55.90
*— machinery mechanic, 8-49.35
*— or quarry railway engine driver, 9-83.60
— surveyor, 0-31.30
Miner (general), 7-11.05
—, hydraulic (placer mining), 7-11.90
*MINERAL AND STONE TREATERS, 7-12
Mineral crushing-machine operator, 7-12.30
— milling-machine operator, 7-12.40
Mineralogist, 0-13.90
*MINERS AND QUARRYMEN, 7-11
Miners, quarrymen, well drillers and related workers, 7-1
*Miniature painter, 1-61.90
Mining engineer (coal), 0-27.20
*— — (diamonds), 0-27.90
— — (general), 0-27.10
— — (metal), 0-27.30
*— — (petroleum and natural gas), 0-27.40
MINING ENGINEERS, 0-27
*Mining geologist, 0-13.30
— machinery fitter-assembler, 8-41.40
— — mechanic, 8-49.35
— technician (general), 0-38.10
MINING TECHNICIANS, 0-38
*Mining technology teacher, 1-31.80
Mining-machine operator, continuous, 7-11.40
*Minister, government, 2-01.10
— of religion, 1-41.20
MINISTERS OF RELIGION AND RELATED MEMBERS OF RELIGIOUS ORDERS, 1-41
*Mink farm worker, 6-24.50
Mirror silverer, 8-95.70
*Mirror-finish polisher, metalworking, 8-35.90
Missionary, 1-41.30
*Mixed farmer, 6-11.10
Mixer, abrasives, 8-99.60
— and blender, fibre, 7-51.25
*—, chocolate making, 7-76.50
*Mixer, dough (bread), 7-76.20
*—, flour confectionery, 7-76.30
*—, glass making, 8-99.20
*—, glaze, 8-99.50
*—, ice-cream, 7-75.50
—, operator, concrete, 9-74.70
*—, snuff, 7-89.20
*—, sugar confectionery, 7-76.60
*—, tobacco, 7-81.30
Mixing- and blending-machine operator (chemical and related processes), 7-41.40
*Mixing-machine operator, fur fibres, 7-59.45
*Mixing-mill operator, rubber, 9-01.20
Mixing-plant operator, concrete, 9-74.75
Mobile crane operator, 9-73.30
*Model, artist's, 5-99.90
— maker, wooden, 8-19.40
*—, clothing display, 4-51.40
—, fashion, 4-51.40
Modeller, pottery and porcelain, 8-92.15
*—, sculpture, 1-61.20
*Mogul operator (sugar confectionery), 7-76.60
*Molecular physicist, 0-12.80
*Molybdenum floatation man, 7-12.60
Money changer, 3-31.50
*Monk, 1-41.40
*Monotype casting-machine operator, 9-21.40
— keyboard operator, 9-21.35
Monument carver-setter, 8-20.80
*Monumental mason, 8-20.80
*Moral welfare worker, 1-93.20
*Morphologist, 1-95.20
*Morse operator, 3-80.40
*Mortgage clerk, 3-39.40
*Mortician, 5-92.20
*Morticing-machine operator (woodworking), 8-12.90
Mosaic cutter and setter, 9-51.55
*Motel keeper (working proprietor), 5-10.20
*— manager, 5-00.20
Motion picture camera operator, 1-63.60
*— — cartoonist, 1-61.40
— — producer, 1-74.30
— —, radio and television director, 1-73.40
*— study engineer, 0-28.30
*— — technician, 0-39.30
*Motor boatman, 9-81.90
— bus driver, 9-85.40
— cyclist, 9-85.70
*— patrolman (police), 5-82.20
*Motor-car designer, 0-24.70
*— driver (private), 9-85.90
*— — (taxi), 9-85.30
Motor-cycle mechanic, 8-43.40
*— patrolman, 5-82.20
*Motor-racing driver, 1-80.20
*Motor-tricycle driver (goods), 9-85.70
*— driver (taxi), 9-85.30
Motor-truck mechanic, 8-43.30
*Motor-vehicle body repainter, 9-39.60
MOTOR-VEHICLE DRIVERS, 9-85
*Motor-vehicle mechanic (automobiles), 8-43.20
MOTOR-VEHICLE MECHANICS, 8-43
Motorised farm equipment operator, 6-28.20
*Motorman, railway, 9-83.20
*—, tramcar, 9-85.20
*—, underground or elevated train, 9-83.50
Mould maker, pottery and porcelain, 8-92.20
Moulder, abrasive wheel, 8-92.60
—, bench (metal), 7-25.20

Moulder, brick and tile (hand), 8-92.40
*—, candlemaking, 9-49.60
*—, chocolate, 7-76.90
*—, cigar (hand), 7-82.20
*—, electrotype, 9-23.30
—, floor and pit, 7-25.30
—, glass lens, 8-91.32
—, machine, 7-25.40
*—, stereotype, 9-23.20
—, tire, 9-02.30
*Moulding-machine operator, glass, 8-91.36
— —, plastics (compression), 9-01.55
— —, plastics (injection), 9-01.50
Moulding-press operator, rubber, 9-01.35
*Mounter, photogravure, 9-25.90
*Mucker (except mine), 9-99.10
*— (mine and quarry), 7-11.90
*Mud-plant operator (oil and gas wells), 7-13.90
*Mule spinner, 7-52.20
*Mule-train driver, 9-86.90
*Multi-spindle drilling-machine setter-operator (metalworking), 8-33.60
*Municipal accountant, 1-10.10
*Museum curator, 1-91.40
*— guard, 5-89.40
*— guide, 5-91.30
*Mushroom farm worker, 6-29.90
*— grower, 6-12.90
*Music composer, 1-71.20
*— critic, 1-51.30
*— director, 1-71.90
*— engraver (printing), 9-24.90
*— teacher (private), 1-71.40
*— — (second level). 1-32.50
*— — (third level), 1-31.90
*— transcriber, 1-71.30
*Musical instrument maker, metal (wind), 9-41.40
*— — — (stringed), 9-41.20
*— — — (woodwind), 9-41.30
MUSICAL INSTRUMENT MAKERS AND TUNERS, 9-41
Musical instrument tuner, 9-41.80
*— programme director, 1-71.90
*Musician, instrumental, 1-71.40
*Mustard miller, 7-71.90
*Mycologist, 0-51.20

N

*Nail-making-machine operator, 8-39.90
Nailer, fur, 7-92.60
*Nannie, 5-40.35
Natural science teacher (second level), 1-32.30
*Naturalist (taxidermist), 9-49.20
*Nautical instrument maker, 8-42.30
*Naval architect, 0-24.50
Navigating officer, ship's, 0-42.30
*Navigation teacher, 1-31.90
Navigator, flight, 0-41.40
*Navvy, 9-99.10
*Needle maker, 8-39.90
*Negative developer (black-and-white photography), 9-27.30
*— — (colour photography), 9-27.20
*Neon-lighting electrician, 8-55.90
Net maker (hand), 7-59.40
— — (machine), 7-54.65
*Neurologist, 0-52.40
*Neuropathologist, 0-52.60
*Neurosurgeon, 0-61.30
*News commentator (broadcasting), 1-59.35
— photographer, 1-63.40
*Newscaster, 1-79.20
*Newspaper correspondent, 1-59.15
*— editor-in-chief, 1-59.20
*— reporter, 1-59.30
*— sub-editor, 1-59.25
Newsvendor, 4-52.40
*Night watchman, 5-89.40
*Night-club hostess, 5-99.90
*Nitrider, 7-26.40
NON-METALLIC MINERAL PRODUCT MAKERS, 9-43
*Normaliser (metal treating), 7-26.20
*Notary, 1-29.10
*Novelist, 1-51.20
*Nuclear chemist, 0-11.40
*— engineering technician, 0-35.90
— physicist, 0-12.80
— power engineer, 0-24.85
*Nuclear-power-reactor operator, 9-61.40
Numerical-control-machine setter-operator, 8-33.85
*Nun, 1-41.40
Nurse, anaesthetist, 0-71.20
—, auxiliary, 0-72.10
*—, clinic, 0-71.10
*—, consultant, 0-71.90
*—, district, 0-71.10
*—, industrial, 0-71.40
*—, maternity, 0-71.20
*—, obstetrics, 0-71.20
—, occupational health, 0-71.40
*—, orthopaedic, 0-71.20
*—, pediatric, 0-71.20
*—, practical, 0-72.10
*—, private, 0-71.90
—, professional (general), 0-71.10
*—, psychiatric, 0-71.20
—, public health, 0-71.30
*—, school, 0-71.90
—, specialised, 0-71.20
Nursemaid, 5-40.35
*Nursery school teacher, 1-34.90
— worker, 6-27.30
NURSERY WORKERS AND GARDENERS, 6-27
*Nurseryman (working proprietor), 6-12.70
Nursing aid, 5-99.40
*— teacher (advanced), 1-31.75
*— — (elementary), 1-32.75
*Nut farmer, 6-12.30
*— maker, 8-39.90
*Nut-grinding-machine operator, 7-79.90
Nutritionist, public health, 0-69.20
*Nylon spinner, 7-49.35

O

*Obstetrician, 0-61.20
Occupational analyst, 1-94.40
*— guidance officer, 1-94.30
— health nurse, 0-71.40
*— psychologist, 1-92.30
— therapist, 0-76.30
*— therapy teacher, 1-31.75
*Oceanographer, geological, 0-13.30
*—, geophysical, 0-13.20
*Offal man, 7-73.90

Office cashier, 3-31.30
*— cleaner, 5-52.20
— clerk (general), 3-93.10
— machine operator (reproduction processes), 3-99.50
— machinery fitter-assembler, 8-41.70
— machines mechanic, 8-49.65
Offset pressman, 9-22.40
Oil and gas well-drilling rigger, 9-72.50
*Oil blender (petroleum refining), 7-45.60
*— dispatcher (pipelines), 3-59.90
*— geologist, 0-13.30
— pressman (edible oils), 7-79.20
Oiler and greaser (except ship's engines), 8-49.80
— —, ship, 9-82.30
Oilwell fishing-tool operator, 7-13.90
* Olericulturist, 0-53.30
*Onsetter, mine, 9-73.45
*Open-hearth furnaceman (metal melting), 7-23.20
— — (steel), 7-21.30
Opening-bridge operator, 9-73.55
*Opera singer, 1-71.45
*Operations agent, air transport, 3-59.70
— manager (postal or telecommunications services), 2-19.70
— research analyst, 0-82.40
*Ophthalmologist, 0-61.20
*Opinion-polling statistician, 0-81.30
Optical glass cutter, 8-91.60
— instrument maker and repairer, 8-42.35
*— scanner operator, 3-42.90
Optician, dispensing, 0-75.30
*—, ophthalmic, 0-75.20
*Optics physicist, 0-12.40
Optometrist, 0-75.20
OPTOMETRISTS AND OPTICIANS, 0-75
*Optometry teacher, 1-31.75
*Oral hygienist, 0-64.40
*— surgeon, 0-63.20
Orchard worker, 6-23.20
—, vineyard and related tree and shrub crop farmer, 6-12.30
ORCHARD, VINEYARD AND RELATED TREE AND SHRUB CROP WORKERS, 6-23
Orchestra and band conductor, 1-71.35
Orchestrator, 1-71.30
*Order clerk, materials, 3-92.20
*— man (retail trade), 4-51.90
Ordinary seaman, 9-81.40
*Ore crusher operator, 7-12.30
*— separator (magnetic), 7-12.90
Organ builder, 9-41.60
*— pipe maker, 9-41.60
*— tuner, 9-41.80
Organic chemist, 0-11.20
*Organisation and methods engineer, 0-28.20
*Organist, 1-71.40
Ornamental plasterer, 9-55.20
— sheet-metal worker, 8-73.60
*Ornithologist, 0-51.30
*Orthodontist, 0-63.20
Orthopaedic appliance maker and repairer, 8-42.45
— footwear maker, 8-01.20
*— surgeon, 0-61.30
— technician, 0-79.50
*Orthoptist, 0-75.20
Osteopath, 0-79.20
*Osteopathic physician, 0-61.20
*Osteopathy teacher, 1-31.75
*Ostrich farm worker, 6-24.90
*Ostrich raiser, 6-12.40
*Otolaryngologist, 0-61.20
*Outside painter, construction, 9-31.20
*— salesman, 4-52.30
*Oven bricklayer, 9-51.30
*— drawer, ceramics, 8-93.90
*— tender (paint drying), 7-42.90
*Ovenman, biscuits, 7-76.90
*—, bread, 7-76.20
*—, brick and tile, 8-93.60
*—, chemical and related processes, 7-42.40
*—, coke production, 7-49.20
*—, flour confectionery, 7-76.30
*—, pottery and porcelain, 8-93.50
*Overhead wireman (electric power), 8-57.20
*— — (— traction), 8-57.30
*— — (telephone and telegraph), 8-57.40
Overseers, workshop or factory
See Supervisors and general foremen, production
Overseer-foreman, specialised craft
See Introduction; code to craft
Oxygen furnaceman (steel converting), 7-21.40
Oyster farm worker, 6-49.30

P

*Package designer, 1-62.40
*Paco-machine operator, 9-27.90
*Paint chemist, 0-11.20
*— technician, 0-36.90
*— technologist, 0-25.90
Painter, artist, 1-61.30
*—, automobile repair, 9-39.60
—, brush (except construction), 9-39.20
—, buildings, 9-31.20
—, ceramics, 8-95.30
—, glass, 8-95.20
*—, hand-dip (except glass and ceramics), 9-39.40
*—, railway coaches and wagons, 9-31.90
*—, ships' hulls and structural steel, 9-31.30
—, sign, 9-39.50
—, — (except construction), 9-39.30
—, spray (ceramics), 8-95.50
*—, stage scenery, 9-31.90
*Painter-decorator, ships' interiors, 9-31.90
*Painter-retoucher (manufacturing), 9-39.90
Painters, 9-3
PAINTERS, CONSTRUCTION, 9-31
Painting restorer, 1-61.60
*Painting-machine operator (continuous conveyer), 9-39.90
*Palaeontologist, 0-13.30
*Palmist, 1-99.60
*Panel beater, aircraft, 8-73.80
*— —, vehicle, 8-73.70
*Pannel maker (saddlery), 8-03.90
*Pantograph engraver operator, 9-24.45
*— operator (glass decorating), 8-94.90
PAPER AND PAPERBOARD PRODUCTS MAKERS, 9-10
Paper bag and envelope maker (machine), 9-10.70
*— baling-machine operator, 9-71.70
— box cutting- and creasing-press operator, 9-10.50
— — maker (hand), 9-10.20
— — — (machine), 9-10.30
*— coater (tar or asphalt), 9-49.90
— maker (hand), 7-34.60
PAPER MAKERS, 7-34
*Paper novelty maker, 9-10.90
*— pulp beater operator, 7-33.60

*Paper pulp bleacher operator, 7-33.50
*— — digester operator, 7-33.40
PAPER PULP PREPARERS, 7-33
*Paper technician, 0-39.90
*— technologist, 0-29.90
Paper-coating-machine operator, 7-34.50
*Paper-crêping-machine operator, 7-34.90
*Paper-embossing-machine operator, 9-10.90
*Paper-embossing-press operator (printing), 9-29.90
Paper-making-machine operator (back end), 7-34.30
— — (wet end), 7-34.20
*Paper-tube-machine operator, 9-10.90
*Paperboard machine operator, 7-34.90
Paperhanger, 9-59.25
Paraffin plant operator, 7-45.70
*Parasitologist, 0-51.30
**Pari-mutuel* system operator, 5-99.20
*Parish worker, 1-49.90
*Park cleaner, 9-99.10
*— maintenance man, 6-29.60
*Parliamentarian, 2-01.10
*Parliamentary draughtsman, 1-29.10
*Parole officer, 1-93.40
Parquetry worker, 9-54.75
*Passenger traffic department manager, 2-19.60
*Passport officer, 3-10.10
*Paste mixer (pies), 7-76.30
Pasteuriser, dairy products, 7-75.20
*Pastor, 1-41.20
*Pastoralist, 6-12.40
Pastry maker, 7-76.30
*Pastrycook (chef, restaurant), 5-31.30
Patent agent, 1-99.20
— roofing glazier, 9-57.30
Pathologist, medical, 0-52.60
*—, plant, 0-51.20
—, veterinary, 0-52.65
*Pathology teacher, 1-31.30
*Patrolman, beach, 5-89.90
*—, forest fire service, 6-32.50
*—, police, 5-82.20
*—, private establishment, 5-82.40
*Pattern-card copying-machine operator, 7-53.90
*— cutter, Jacquard, 7-53.50
Patternmaker, fur garment, 7-92.30
*—, garments (except fur), 7-94.20
—, hat and cap, 7-94.30
*—, mattress, 7-94.90
—, metal (foundry), 8-32.40
*—, sail, 7-94.90
—, shoe, 8-02.15
*—, tent, 7-94.90
*—, umbrella, 7-94.90
*—, upholstery, 7-94.90
—, wooden, 8-19.35
PATTERNMAKERS AND CUTTERS, 7-94
Paving-machine operator, concrete, 9-74.55
Paviour, 9-51.60
Pawnbroker, 4-90.20
*Pay-roll clerk, 3-39.30
*Paymaster-general, government 2-02.10
*Pearl cultivator, 6-49.90
*— diver, 6-49.90
*Pearling-machine operator (grain-milling), 7-71.90
*Pedagogy teacher (second level), 1-32.90
*— — (third level), 1-31.55
Pedal-cycle repairer, 8-49.75
Pedal-vehicle driver, 9-89.50
*Pediatrician, 0-61.20
*Pedlar, 4-52.20
*Pedodontist, 0-63.20
*Peeler (sawmill), 7-32.90
*Pelletiser operator (iron ore), 7-12.90
PELT DRESSERS, 7-62
Pelt dyer (hand), 7-62.50
*— — (vat or spray), 7-62.90
*— finisher, 7-62.60
— flesher, 7-62.30
— grader, 7-62.20
*— pickler, 7-62.90
— plucker and trimmer, 7-62.40
*— producer (farm), 6-12.40
*— puller, 7-62.40
— stretcher, 7-62.60
*Pelter (farm), 6-24.90
*Pencil-making-machine operator, 9-49.90
*Penologist, 1-92.20
*Perforating-machine operator (shoe finishing), 8-02.55
*Perforator typist, 3-21.90
*Perfume distiller, 7-44.90
*Periodontist, 0-63.20
Personal maid, valet, 5-40.30
PERSONNEL AND OCCUPATIONAL SPECIALISTS, 1-94
Personnel clerk, 3-93.30
*— manager, 2-19.80
*— officer, 1-94.20
— specialist, 1-94.20
*Petition writer, 3-93.90
*Petrol pump attendant, 4-51.90
Petroleum and natural gas engineer, 0-27.40
— — — extraction technician, 0-38.20
*— chemist, 0-11.20
*— desulphurisation treater, 7-45.20
Petroleum-refining blender, 7-45.60
*— engineer, 0-25.20
*— plant controlman, 7-45.50
— pumpman, 7-45.30
— stillman, 7-45.40
*— technician, 0-36.20
PETROLEUM REFINING WORKERS, 7-45
*Petrologist, 0-13.30
*Pewtersmith, 8-80.50
*Pharmacology teacher, 1-31.30
Pharmaceutical assistant, 0-68.10
PHARMACEUTICAL ASSISTANTS, 0-68
*Pharmaceutical bacteriologist, 0-52.50
*— chemist, 0-11.90
Pharmacist, 0-67.10
*—, industrial, 0-11.90
PHARMACISTS, 0-67
Pharmacologist, 0-52.70
*Pharmacy aid, 5-99.50
Philologist, 1-95.20
PHILOLOGISTS, TRANSLATORS AND INTERPRETERS, 1-95
*Philology teacher, 1-31.70
*Philosophy teacher (second level), 1-32.90
*— — (third level), 1-31.65
*Phonologist, 1-95.20
*Photo-composing-machine operator, 9-21.55
Photo-engraver (general), 9-25.10
PHOTO-ENGRAVERS, 9-25
*Photo-engraving finisher, 9-25.60
*— plate grainer, 9-25.90
*— — mounter, 9-25.90
*— prover, 9-25.90
Photo-mechanical transferer, 9-25.40
Photo-type-setting machine operator, 9-21.55
*Photocopying machine operator, 3-99.50

Photogrammetrist, 0-31.50
*Photograph developer (black-and-white), 9-27.30
*— — (colour), 9-27.20
— enlarger, 9-27.50
— printer, 9-27.40
*Photographer, aerial, 1-63.90
*—, architectural, 1-63.90
—, commercial illustrator, 1-63.30
—, general, 1-63.10
*—, medical, 1-63.90
—, news, 1-63.40
*—, photogravure, 9-25.20
*—, police, 1-63,90
—, portrait, 1-63.20
*—, scientific, 1-63.90
PHOTOGRAPHERS AND CAMERAMEN, 1-63
PHOTOGRAPHIC DARK-ROOM WORKERS, 9-27
*Photographic equipment assembler, 8-42.40
— film and paper maker, 9-49.70
*— plate maker, 9-49.90
*— surveyor, 0-31.90
*Photography teacher (second level), 1-32.80
Photogravure cameraman, 9-25.20
— etcher, 9-25.50
— retoucher, 9-25.30
*Photolithographer, 9-25.20
Physical chemist, 0-11.40
*— education teacher, 1-32.90
*— geographer, 1-92.50
— metallurgist, 0-26.30
— metallurgy technician, 0-37.30
PHYSICAL SCIENCE TECHNICIANS, 0-14
*Physical sciences statistician, 0-81.30
*— — teacher (third level), 1-31.20
Physical scientists and related technicians, 0-1
*Physical therapist, 0-76.20
— trainer, 1-80.50
*Physician (general practice), 0-61.05
—, public health, 0-61.40
—, specialised, 0-61.20
Physicist (general), 0-12.10
—, electricity and magnetism, 0-12.60
—, electronics, 0-12.70
—, heat, 0-12.30
—, light, 0-12.40
—, mechanics, 0-12.20
—, nuclear, 0-12.80
*—, solid-state, 0-12.90
—, sound, 0-12.50
*—, theoretical, 0-12.90
PHYSICISTS, 0-12
*Physics teacher (second level), 1-32.30
*— — (third level), 1-31.20
— technician, 0-14.30
Physiologist, 0-52.40
*—, animal, 0-51.30
*—, plant, 0-51.20
Physiotherapist, 0-76.20
PHYSIOTHERAPISTS AND OCCUPATIONAL THERAPISTS, 0-76
*Physiotherapy teacher, 1-31.75
*Pianist, 1-71.40
Piano maker, 9-41.70
*— tuner, 9-41.80
*Piano-accordion maker, 9-41.50
*Piano-case maker, 8-11.90
Picker, fibre, 7-51.30
*Picker-machine operator (textile fibre), 7-51.30
Pickler, food, 7-74.50
*Pickler, metal, 7-29.40
*—, pelt, 7-62.90
*Picture frame maker, 8-19.90
*Pie maker, 7-76.30
*Piercer, precious metal, 8-80.90
Pig farm worker, 6-24.40
*— raiser, 6-12.40
Pile-driver operator, 9-74.40
*Piler (mine), 7-11.60
Pilot, air transport, 0-41.20
—, aircraft (except transport), 0-41.30
*—, hovercraft, 0-42.90
—, ship, 0-42.40
*Pine resin tapper, 6-29.40
Pipe and boiler insulator, 9-56.50
— tube fitter, aircraft, 8-71.40
*— drawer, seamless, 7-27.40
— fitter (general), 8-71.10
— —, gas, 8-71.20
— —, marine, 8-71.30
*— —, steam, 8-71.90
— layer, 9-59.50
— maker, smoking (wood), 8-19.60
*Pipeline operations department manager, 2-19.90
*Pisciculture worker, 6-49.20
*Pisciculturist, 0-51.30
*Pit moulder, 7-25.30
*Placement officer, 1-94.20
*Placer miner, hydraulic, 7-11.90
*Plain-grinding-machine setter-operator (metalworking), 8-33.70
*Plain-milling-machine setter-operator (metalworking), 8-33.30
*Plane-mill operator (metalworking), 8-34.40
*— setter-operator (metalworking), 8-33.40
*Planer, stone, 8-20.20
Planing-machine operator, 8-34.40
— setter-operator, 8-33.40
— — (woodworking), 8-12.70
*Planning clerk, materials supply, 3-92.20
— —, production, 3-92.30
*Plant ecologist, 0-51.20
*— geneticist, 0-51.20
*— histologist, 0-51.20
— maintenance mechanic, 8-49.70
*— pathologist, 0-51.20
*— physiologist, 0-51.20
*— taxonomist, 0-51.20
Plantation worker
See Farm worker
*Planters
See Farmers
Plasterer, fibrous sheet, 9-55.40
—, general, 9-55.10
—, ornamental, 9-55.20
—, stucco, 9-55.30
PLASTERERS, 9-55
*Plastic surgeon. 0-61.30
*Plastics bench-mechanic, 9-01.80
*— buffer, 9-01.90
*— carver, 9-49.90
*— chemist, 0-11.20
— compression-moulding-machine operator, 9-01.55
*— driller, 9-01.90
— extruding-machine operator, 9-01.60
*— finisher, 9-01.90
*— gauge and jig maker, 9-01.80
*— grinder, 9-01.90
— injection-moulding-machine operator, 9-01.50

Plastics laminator, 9-01.65
*— polisher, 9-01.90
— products assembler, 9-01.70
— products fabricator, 9-01.80
*— technician, 0-36.90
*— technologist, 0-25.90
*Plate bender, 8-74.90
*— finisher, photo-engraving, 9-25.60
*— grainer, photogravure, 9-25.90
*— maker (photogravure), 9-25.40
*— mounter, 9-25.90
*— roller (steel), 7-22.30
Plate-glass glazier, 9-57.40
— polisher, 8-91.48
— rollerman, 8-91.4[illegible]
Platen pressman, 9-22.25
Plater (electroplating), 7-28.20
*—, boilermaking, 8-73.50
—, hot-dip, 7-28.30
—, ship, 8-74.55
*—, wire (machine), 7-28.40
*Player, musical instrument, 1-71.40
*—, professional sport, 1-80.20
*Playwright, 1-51.20
*Plucker, pelt, 7-62.40
Plumber (general), 8-71.05
*—, chemical, 8-71.90
*—, ship, 8-71.30
*Plumber-jointer, electric cables, 8-57.50
PLUMBERS AND PIPE FITTERS, 8-71
Plumbers, welders, sheet-metal and structural metal preparers and erectors, 8-7
Plywood core-laying-machine operator, 7-32.50
— press operator, 7-32.60
Pneumatic riveter, 8-74.70
*Pneumatic-drill operator, 9-74.90
*Podiatrist, 0-79.90
*Poet, 1-51.20
*Pole and pile cutter, 6-31.90
*Police court magistrate, 1-22.10
— guard, private, 5-82.40
*— photographer, 1-63.90
Policeman, 5-82.20
POLICEMEN AND DETECTIVES, 5-82
*Policy clerk, insurance, 3-93.50
Polisher and cutter, gem, 8-80.30
*—, hand (metalworking), 8-35.90
*—, plastics, 9-01.90
—, plate glass, 8-91.48
*—, shoe (shoemaking), 8-02.90
*—, stone, 8-20.20
*Polishing-machine operator, leather, 7-61.90
— —, lens, 8-91.72
*— —, metalworking, 8-35.20
*— — (nuts), 7-79.90
*Political geographer, 1-92.50
*— historian, 1-92.60
*— philosopher, 1-92.70
*— science teacher (third level), 1-31.65
— scientist, 1-92.70
*Polymers chemist, 0-11.20
*Polythene bag-making-machine operator, 9-10.80
*Pomologist, 0-53.30
*Pool operator (betting), 5-99.20
*Porcelain and pottery, etc.
See Pottery and porcelain, etc.
*Port captain, 0-42.50
*Porter, baggage (except hotel), 9-71.90
*—, — (hotel), 5-99.90

*Porter, food market, 9-71.45
*—, goods-loading (railway and road vehicles), 9-71.30
—, warehouse, 9-71.45
*Portrait painter, 1-61.30
— photographer, 1-63.20
*Positive developer (black-and-white photography), 9-27.30
*— — (colour photography), 9-27.20
Post office counter clerk, 3-31.70
*Postal service operations manager, 2-19.70
— services supervisor, 3-59.80
*— vehicle driver, 9-85.90
*Poster artist, 1-62.20
*Posting-machine operator, bookkeeping, 3-41.20
Postman, 3-70.30
Postmaster, 3-52.10
POSTMASTERS, 3-52
*Pot-heater tender (tires), 9-02.30
*Potato digger, 6-22.90
*— farm worker, 6-22.20
*Potman (chemical and related processes), 7-42.20
Potter (general), 8-92.10
*Potter's millman, 8-99.30
POTTERS AND RELATED CLAY AND ABRASIVE FORMERS, 8-92
Pottery and porcelain caster (hand), 8-92.35
— — die-presser, 8-92.50
— — jiggerman, 8-92.30
— — kilnman, 8-93.50
— — modeller, 8-92.15
— — mould maker, 8-92.20
— — presser (hand), 8-92.45
— — thrower, 8-92.25
*— — turner, 8-92.90
*— artist, 8-95.30
*— driller, 8-92.90
*Poultry breeder (working proprietor), 6-12.60
*— dresser, 7-73.90
— farm worker (general), 6-26.10
POULTRY FARM WORKERS, 6-26
Poultry farmer, 6-12.60
— hatchery worker, 6-26.20
Pourer, metal, 7-24.20
Power distribution and transmission engineer, 0-23.30
*— — technician (electricity), 0-34.20
— generation engineer, 0-23.20
*— — technician (electricity), 0-34.20
— reactor operator, 9-61.40
— switchboard operator, 9-61.60
*— transmission technician (electricity), 0-34.20
POWER-GENERATING MACHINERY OPERATORS, 9-61
*Power-plant engineer, nuclear, 0-24.85
*— operator, compressed air, 9-69.20
*— —, electricity-generating (private installation), 9-61.90
*— —, hydroelectric, 9-61.30
— —, steam, 9-61.20
Power-shear operator, 8-39.80
Practical aid (pharmacy), 5-99.50
— — (veterinary), 5-99.60
*— dentist, 0-64.20
PRE-PRIMARY EDUCATION TEACHERS, 1-34
*Preacher (non-ordained), 1-41.40
Precious metal leaf maker, 8-80.70
— — roller, 8-80.60
Precipitator, 7-12.70
Precision sawyer, 8-12.20
Precision-grinding-machine operator, 8-34.65
— setter-operator, 8-33.70

Precision-instrument assembler, 8-42.40
— maker and repairer, 8 42.30
*Preparer, sole, 8-02.40
—, uppers, 8-02.30
Preserving cook (general), 7-74.10
— —, fish, 7-74.15
*— —, meat, 7-74.10
*President, company, 2-11.10
*—, government, 2-01.10
*Press editor, 1-59.20
*— liaison officer, 1-59.55
— operator, cardboard, 9-10.60
*— —, chocolate making, 7-76.50
*— —, clay filtering, 8-99.90
— —, cutting and creasing (paper box), 9-10.50
*— —, edible oils, 7-79.20
— —, forging, 8-31.40
*— —, fruit juice extraction, 7-78.80
*— —, metal (except forging or plate bending), 8-39.60
*— —, metal-bending, 8-39.70
*— —, plastics laminating, 9-01.65
— —, plywood, 7-32.60
*— —, rubber-embossing, 9-01.90
— —, rubber-moulding, 9-01.35
*— —, sugar beet, 7-72.90
*— —, textile, 7-56.70
*— —, tire-moulding, 9-02.30
*— photographer, 1-63.40
*— telegraphist, 3-80.40
*— tool maker, 8-32.20
*Press-baling machine operator, 9-71.70
Presser (hand), 5-60.70
*—, machine (laundry), 5-60.60
—, pottery and porcelain (hand), 8-92.45
Pressing-machine operator (laundry), 5-60.60
— —, glass, 8-91.36
*Pressman, cylinder letterpress, 9-22.20
—, direct lithographic, 9-22.50
*—, hardboard, 7-34.90
*—, offset lithographic, 9-22.40
*—, paraffin plant, 7-45.70
*—, platen letterpress, 9-22.25
*—, rotary letterpress, 9-22.30
—, rotogravure, 9-22.60
—, sole, 8-02.35
*—, wallpaper printing, 9-22.70
*Pressure cook, 7-74.20
*Prestidigitator, 1-75.30
*Price economist, 0-90.20
*Priest, 1-41.20
PRIMARY EDUCATION TEACHERS, 1-33
*Prime minister, 2-01.10
*Principal nursing officer, 0-71.10
*—, school, 1-39.40
*Print developer, machine, 9-27.90
Printer, block, 9-29.40
—, general, 9-21.10
*—, photographic, 9-27.40
—, silk-screen, 9-29.30
—, textiles, 9-29.50
*Printer-to-metal (photogravure), 9-25.40
*Printer's proof reader, 3-99.40
Printers and related workers, 9-2
Printing engraver, hand (metal plate, roller and die), 9-24.20
*— —, — (wood, rubber or linoleum block), 9-24.30
— —, machine (metal roller), 9-24.40
*— —, photogravure (general), 9-25.10
PRINTING ENGRAVERS (EXCEPT PHOTO-ENGRAVERS), 9-24
*Printing engraving operator (pantograph), 9-24.45
*— etcher (metal plates or rollers), 9-24.60
*— —, photogravure, 9-25.50
— machinery fitter-assembler, 8-41.45
— — mechanic, 8-49.40
— maker-up, 9-21.45
— plate retoucher, 9-25.60
*— pressman, cylinder, 9-22.20
*— —, direct lithographic, 9-22.50
*— —, offset lithographic, 9-22.40
*— —, platen, 9-22.25
*— —, rotary, 9-22.30
*— —, rotogravure, 9-22.60
*— —, wallpaper, 9-22.70
*PRINTING PRESSMEN, 9-22
*Printing teacher, 1-32.80
*— transferrer, lithographic, 9-24.50
Prison guard, 5-89.30
*— welfare worker, 1-93.20
Private inquiry agent, 5-89.20
— police guard, 5-82.40
*— secretary-stenographer, 3-21.20
*Probate clerk, 3-93.40
*— judge, 1-22.10
*Probation officer, 1-93.40
*Process pumper (petroleum refining), 7-45.30
*— server, 3-70.40
*Procurement agent, 4-22.30
*— manager, 2-19.90
Producer, motion picture, 1-74.30
—, radio and television, 1-74.40
—, theatrical, 1-74.20
PRODUCERS, PERFORMING ARTS, 1-74
Production engineering technician, 0-39.20
— manager (except farm), 2-12.10
— planning clerk, 3-92.30
PRODUCTION SUPERVISORS AND GENERAL FOREMEN, 7-00
Professional midwife, 0-73.10
PROFESSIONAL MIDWIVES, 0-73
Professional nurse (general), 0-71.10
PROFESSIONAL NURSES, 0-71
Professional sportsman, 1-80.20
*Professors
  See Teachers, university and higher education, 1-35
*Programme salesman, theatre, 4-90.90
Programmer, computer, 0-84.20
*Projection printer, 9-27.50
Projectionist, cinema, 8-62.40
*Proofer, photogravure, 9-25.90
*Proof-pressman, 9-21.90
Proof reader, 3-99.40
*Prop drawer, 7-11.90
*Propagator (nursery), 6-27.30
*Property agent, 4-41.30
*— salesman, 4-41.30
*Prophylactician, 0-64.40
*Prosecutor, 1-21.10
*Prosthodontist, 0-63.20
Protective service workers, 5-8
*Prover, photogravure, 9-25.90
*Pruner and trimmer (forestry), 6-32.90
*—, fruit trees, 6-23.90
Psychiatric social worker, 1-93.50
Psychologist, 1-92.30
*Psychology teacher (third level), 1-31.65
*Public accountant, 1-10.10
— address equipment operator, 8-62.30
— administration, teacher of, 1-31.90

Public health dentist, 0-63.30
*— — engineer, 0-22.50
*— — inspector, 0-79.40
— — nurse, 0-71.30
— — nutritionist, 0-69.20
— — physician, 0-61.40
— — veterinarian, 0-65.20
*— information officer, 1-59.55
*— — writer, 1-59.60
*— relations manager, 2-19.90
— — officer, 1-59.55
*— writer, 3-93.90
*Publicity man, 1-59.55
— writer, 1-59.60
*Puddling furnaceman, 7-21.90
*Pug-mill operator, clay, 8-99.90
*Puisne judge, 1-22.10
*Puller, pelt, 7-62.40
*Puller-over (machine), 8-02.45
*Pulling-machine operator (oil and gas wells), 7-13.60
*Pullman-car attendant, 3-60.30
*Pulp press operator (sugar beet), 7-72.90
*— refiner operator (paper making), 7-33.90
*Pulping-machine operator (wood pulp), 7-33.20
*Pulveriser (chemical and related processes), 7-41.30
*Pulveriser operator, 7-12.40
*Pumphouse man, 9-69.40
Pumping-station operator, 9-69.40
*Pumpman (except petroleum refinery), 9-69.40
— (petroleum refining), 7-45.30
Punched-card-machine operator, 3-42.30
*Punching-press operator, 8-39.60
*Puppeteer, 1-79.90
*Purchaser, merchandise (wholesale or retail trade), 4-22.20
Purchasing agent, 4-22.30
*— manager, 2-19.90
*Purifying-plant operator (water works), 9-69.50
*Purser, aircraft, 5-99.70
—, ship's, 5-00.40

Q

*Quality checker, electrical and electronic products, 8-59.20
*— —, mechanical products, 8-49.85
*— control chemist, 0-11.50
— inspector, 9-49.80
Quantity surveyor, 0-33.20
Quarry and mine brakeman, 9-84.50
Quarryman (general), 7-11.10
*Quarter sessions judge, 1-22.10
*Quay superintendent, 3-59.90
*Quilt maker, 7-96.90

R

*Rabbi, 1-41.20
*Racehorse trainer, 6-24.90
*Racker, wine, 7-78.90
*Radar engineer, 0-23.90
*— fitter, 8-52.20
*— technician, 0-34.90
*Radial-arm drilling-machine setter-operator (metalworking), 8-33.60
Radio and television announcer, 1-79.20
— — journalist, 1-59.35
— — mechanic, 8-54.20
— — producer, 1-74.40
RADIO AND TELEVISION REPAIRMEN, 8-54
Radio and television studio equipment operator, 8-61.30
— — transmitting equipment operator, 8-61.20
*— astronomer, 0-13.50
*— critic, 1-51.30
*— director, 1-73.40
*— engineer, 0-23.90
*— engineering technician, 0-34.90
— officer, ship, 3-80.50
— operator, flight, 3-80.60
*— receiver assembler, 8-53.30
— telephone operator, land-based, 3-80.30
*— transmitter fitter, 8-52.20
*— valve assembler, 8-53.90
*Radioactive waste treatment operator, 7-49.40
*Radiography technician, medical, 0-77.10
*Radiology teacher, 1-31.75
*Raft assembler, 6-31.40
*— driver, logging, 6-31.40
*Rag breakerman, 7-33.90
*Rail-carriage upholsterer, 7-96.30
Railway and road vehicle loader, 9-71.30
— brakeman (freight train), 9-84.20
RAILWAY BRAKEMEN, SIGNALMEN AND SHUNTERS, 9-84
*Railway carriage cleaner, 5-52.90
— construction engineer, 0-22.40
*— crane operator, 9-73.90
*— dispatcher, 3-59.25
— engine-driver, 9-83.20
*— —, mine and quarry, 9-83.60
RAILWAY ENGINE-DRIVERS AND FIREMEN, 9-83
Railway goods agent, 3-59.35
— passenger train guard, 3-60.20
— service supervisor, 3-59.20
— shunter, 9-84.40
— signalman, 9-84.30
— station master, 3-51.10
RAILWAY STATION MASTERS, 3-51
Railway steam-engine fireman, 9-83.30
*— tie cutter, 6-31.90
— transport service inspector, 3-59.30
*Raisers
See Farmers
*Ranch hand, cattle, 6-24.20
*— —, sheep, 6-24.30
*Rancher, 6-12.40
*Ranger, forest, 6-32.90
*Rating clerk, 3-39.40
*Rayon spinner, 7-49.35
*Reactor operator (nuclear power plant,) 9-61.40
Reactor-converter operator (chemical processes, except petroleum), 7-44.40
Readers, 1-35
See Teachers, university and higher education
*Reading teacher, 1-33.90
Real-estate salesman, 4-41.30
*Reamer operator (metalworking), 8-34.60
*— setter-operator (metalworking), 8-33.60
Rebuilder, tire, 9-02.40
*Recapper, tire, 9-02.40
Receiving and dispatching clerk, 3-91.20
Receptionist (general), 3-94.10
—, doctor's or dentist's, 3-94.30
—, hotel, 3-94.20
RECEPTIONISTS AND TRAVEL AGENCY CLERKS, 3-94
*Reciprocating steam-engine fitter-assembler (except marine), 8-41.90
— — mechanic, 8-49.15

*Recording tester, 8-62.90
*Records clerk, personnel department, 3-93.30
*— —, stock control, 3-91.30
*— section supervisor, office, 3-00.90
*Recreation leader, 1-93.30
*Recreational therapist, 0-76.30
*Rectifier operator (electric current), 9-61.90
*Rector, 1-41.20
*Red-lead burner, 7-49.90
*Red-leader, 9-31.30
*Reed or osier grower, 6-12.90
*Reeler (thread and yarn), 7-52.50
*Referee (sport), 1-80.40
*Refiner (chocolate making), 7-76.50
Refining-machine operator (oils and fats), 7-79.25
*Refreshment-room manager, 5-00.90
*Refreshments salesman, cinema or theatre, 4-90.90
*Refrigerating-process worker (foodstuffs), 7-74.30
Refrigeration and air-conditioning equipment insulator, 9-56.60
— — plant installer and mechanic, 8-41.80
*— engineer, 0-24.80
*— engineering technician, 0-35.50
*— equipment erector, 8-41.80
— system operator, 9-69.70
*Refuse collector, 9-99.10
*— disposal incinerator operator, 9-69.60
*Regional director, government administration, 2-02.10
*— —, postal services, 2-19.70
*— manager, railway, 2-19.60
*Registrar-general, 2-02.10
Reinforced concreter (general), 9-52.10
REINFORCED CONCRETERS, CEMENT FINISHERS AND TERRAZZO WORKERS, 9-52
Reinforcing iron worker, 9-52.30
*— wire mesh worker (concrete), 9-52.90
*Religion, teacher of (second level), 1-32.40
Religious worker (member of religious order), 1-41.40
*Remedial gymnast, 0-79.90
*Remoulder, tire, 9-02.40
*Removal man, 9-71.90
*Rent collector, 3-39.90
Repair shop foreman
See supervisors and general foremen, production
Repairer, fabrics, 7-54.75
Reporter, 1-59.30
*Representative (commercial traveller), 4-32.20
*—, business services (except advertising), 4-42.20
Research and development manager, 2-19.20
*Reservations clerk, travel agency, 3-94.40
*Reservoir keeper, 9-69.90
*Resin compounder (chemical and related processes), 7-41.90
Resistance welder, 8-72.35
*Rest-room attendant, 5-99.90
*Restaurant cashier, 3-31.60
— manager, 5-00.30
**Restaurateur*, 5-10.30
Restorer, paintings, 1-61.60
*Retail butcher (meat cutter), 7-73.30
— manager, 4-00.30
*— pharmacist, 0-67.10
— trade salesman, 4-51.30
*Retailer, 4-10.30
*Retort kilnman, brick and tile, 8-93.60
*— man (chemical and related processes), 7-42.40
*— operator (charcoal burning), 7-49.30
*— — (coal-gas production), 7-49.25
*Retort kilnman (coke production), 7-49.20
*— — (foodstuffs), 7-74.20
Retoucher, photogravure, 9-25.30
—, printing plates, 9-25.60
*Retoucher-painter (manufacturing), 9-39.90
*Retreader, tire, 9-02.40
*Reverberatory furnaceman (metal melting), 7-23.20
*Reversing-mill roller (cold steel), 7-22.40
*Revolving pan operator (sugar confectionery), 7-76.60
*Rheologist, 0-12.20
*Rheostat fitter, 8-51.40
*Ribbon-lap-machine operator, 7-51.40
Rice farm worker, 6-22.50
*— farmer, 6-12.20
— miller, 7-71.30
*Rickshaw boy, 9-89.90
*Rider, bicycle or tricycle (not motorised), 9-89.50
Rigger, aircraft, 9-72.40
*—, cable railway, 9-72.90
*—, hoist (construction), 9-72.20
—, hoisting equipment (general), 9-72.05
—, oil and gas well-drilling, 9-72.50
*—, scaffolding, 9-59.40
—, ship, 9-72.30
*—, ski-lift, 9-72.90
RIGGERS AND CABLE SPLICERS, 9-72
*Ring spinner, 7-52.20
River driver, 6-31.40
*— policeman, 5-82.20
*Rivet catcher, 8-74.90
*— heater, 8-74.90
*— maker, 8-39.90
Riveter, hand, 8-74.60
—, machine, 8-74.65
—, pneumatic, 8-74.70
Road and railway vehicle loader, 9-71.30
*— construction engineer, 0-22.30
*— maintenance labourer, 9-99.10
— passenger transport service inspector, 3-59.45
— transport service supervisor, 3-59.40
Road-grader and scraper operator, 9-74.45
Road-roller operator, 9-74.50
*Road-surface-laying-machine operator, 9-74.60
Roaster, chemical and related processes, 7-42.30
—, cocoa-bean, 7-77.60
—, coffee, 7-77.50
*Rock crusher operator, 7-12.30
*Rod extruder operator (metal), 7-27.50
*— maker, glass, 8-91.76
Rod-casting machine operator, continuous (non-ferrous metal), 7-24.50
*Rodent exterminator, 5-99.90
*Rodman (surveying), 9-99.10
*Roller, cigar (hand), 7-82.20
—, cold (steel), 7-22.40
—, continuous mill (steel), 7-22.30
*— driver (road construction), 9-74.50
*—, hot-rolling (steel), 7-22.20
—, non-ferrous metals, 7-22.50
*— plant operator (dried milk), 7-75.90
—, precious metal, 8-80.60
—, seamless pipe and tube, 7-22.60
*—, sugar confectionery, 7-76.60
*Rollerman (edible oil processing), 7-79.20
*— (grain milling), 7-71.20
*— (mustard milling), 7-71.90
— (plate glass), 8-91.44
*— (rice milling), 7-71.30
*— (spice milling), 7-71.40

*Rolling helper, 7-22.90
*Roof bolter (mine), 7-11.60
— thatcher, 9-53.60
*Roofer, asphalt and related materials, 9-53.40
*—, composition materials, 9-53.30
—, metal, 9-53.50
—, slate and tile, 9-53.20
*—, wood-shingle, 9-53.90
ROOFERS, 9-53
*Roofing glazier, 9-57.30
Rope and cable splicer (general), 9-72.10
*Rose engine turner, 8-80.90
Rotary driller (oil and gas wells), 7-13.30
— pressman, 9-22.30
*Rotary veneer-machine operator, 7-32.40
Rotary-drum filterer, 7-43.30
Rotogravure pressman, 9-22.60
*Rotor coil winder (hand), 8-53.50
*— — — (machine), 8-53.40
*Rounder, sole, 8-02.40
*Rounding- and backing-machine operator (bookbinding), 9-26.30
*Roundsman (retail distribution), 4-52.20
*Roustabout (labourer), 9-99.10
*Router operator (metalworking), 8-34.90
*— setter-operator (metalworking), 8-33.90
*Routing clerk (freight), 3-91.20
Routing-machine setter-operator (wood), 8-12.60
Rover, fibre, 7-51.55
*Roving-frame operator (textile fibre), 7-51.55
*Rubber (raw latex) processer, 7-49.90
RUBBER AND PLASTICS PRODUCT MAKERS (EXCEPT TIRE MAKERS AND TIRE VULCANISERS), 9-01
*Rubber baling-press operator, 9-71.70
— calender operator, 9-01.25
*— chemist, 0-11.20
— goods assembler, 9-01.40
*— grower, 6-12.30
— millman, 9-01.20
— plantation worker, 6-23.50
*— stamper, ceramics decorating, 8-95.40
*— tapper, 6-23.90
*— technician, 0-36.90
*— technologist 0-25.90
*Rubber-embossing-machine operator, 9-01.90
Rubber-extruding-machine operator, 9-01.30
Rubber-moulding-press operator, 9-01.35
*Rubber-spreading-machine operator, 9-01.90
Rubber-stamp maker, 9-49.50
*Rubble-stone setter, 9-51.90
*Runner, 3-70.40
*Rush-matting maker, 9-42.90

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Saddler and harness maker, 8-03.20
*Safety engineer, 0-28.90
*— inspector, 3-10.10
*— net maker (hand), 7-59.40
*— officer, 1-94.90
*Saggar maker, 8-93.90
*Sail cutter, 7-94.90
*— patternmaker, 7-94.90
*— sewer, hand, 7-95.90
*— —, machine, 7-95.50
—, tent and awning maker, 7-99.20
*Sailor (able seaman), 9-81.30
*— (ordinary seaman), 9-81.40
*Salaries clerk, 3-39.30
*Sales canvasser, 4-52.30
— manager (except wholesale and retail trade), 2-19.30
*— methods teacher, 1-31.90
*— organiser (regional or overseas), 4-21.90
*— promotion methods man, 4-21.90
— supervisor (retail trade), 4-21.30
— — (wholesale trade), 4-21.20
SALES SUPERVISORS, 4-21
Sales supervisors and buyers, 4-2
Salesman, advertising, 4-42.30
—, business services (except advertising), 4-42.20
—, insurance, 4-41.20
*—, newspaper, 4-52.40
—, real-estate, 4-41.30
—, retail trade, 4-51.30
—, securities, 4-41.40
—, technical, 4-31.20
*—, travelling, 4-32.20
—, wholesale trade, 4-51.20
*Salesman-driver, 4-52.20
SALESMEN, SHOP ASSISTANTS AND DEMONSTRATORS, 4-51
*Salter (foodstuffs), 7-74.50
*—, cheese, 7-75.90
*Salvageman (fire), 5-81.30
*Salvationist, 1-41.40
Sampler (mine), 7-11.70
*—, core, 7-11.90
*Sand polisher (metalworking), 8-35.90
*Sandblaster (building exteriors), 9-59.75
*— (castings), 7-29.30
*— (glass decorating), 8-94.40
*— (stonecutting), 8-20.90
*Sanding-machine operator (woodworking), 8-12.90
Sanitarian, 0-79.40
Sanitary engineer, 0-22.50
*— man (waste disposal), 9-99.10
*Saturation attendant (sugar refining), 7-72.40
*Sauces and condiments preserving cook, 7-74.90
*Sauna bath attendant, 5-70.70
Sausage maker, 7-73.40
Saw repairer and sharpener, 8-35.50
*Sawing-machine operator, metalworking, 8-34.75
*Sawmill operator (band-saw), 7-32.30
— sawyer (general), 7-32.10
Sawyer, edge, 7-32.20
—, precision (wood), 8-12.20
—, sawmill (general), 7-32.10
*—, stone, 8-20.20
SAWYERS, PLYWOOD MAKERS AND RELATED WOOD-PROCESSING WORKERS, 7-32
*Saxophonist, 1-71.40
Scaffolder, 9-59.40
*Scale balancer, 8-42.30
*— clerk, 3-91.50
*Scaler, logging, 6-31.90
*Scenario writer, 1-59.90
*Scenery designer, 1-62.90
*— painter, stage sets, 9-31.90
*Schedule clerk, materials, 3-92.20
*— —, production planning, 3-92.30
School dental assistant, 0-64.30
— inspector, 1-39.50
*— principal, 1-39.40
*Schoolmaster
See Primary education teachers;
Secondary education teachers
Scientific glass blower, 8-91.24
*— instrument maker and repairer, 8-42.90
*— photographer, 1-63.90

*Scissor sharpener, itinerant, 8-35.90
*Scourer, wool fibre, 7-51.20
*Scrap baling-press operator, 9-71.70
*Scraper and grader operator (construction), 9-74.45
*Screen operator (chemical and related materials), 7-43.90
*— — (sugar refining), 7-72.90
*Screen-printing stencil maker, photographic process, 9-29.90
*Screen-stencil-printer operator, 9-29.30
*Screener operator (minerals), 7-12.90
*— — (paper pulp), 7-33.90
*—, snuff, 7-89.20
*Screensman (grain milling), 7-71.90
*Screw-cutting-machine operator (metalworking), 8-34.90
*— setter-operator (metalworking), 8-33.90
*Scribe, 3-93.90
*Script editor, 1-59.40
*— girl, 3-21.90
*— writer, 1-59.90
Sculptor, 1-61.20
SCULPTORS, PAINTERS AND RELATED ARTISTS, 1-61
Sculptors, painters, photographers and related creative artists, 1-6
Seal hunter, 6-49.50
Seaman, able, 9-81.30
—, ordinary, 9-81.40
*Seamless hosiery knitting-machine operator, 7-55.30
— pipe and tube drawer, 7-27.40
— — tube roller, 7-22.60
*Seaplane pilot (air transport), 0-41.20
*Seasonal farm worker (general), 6-21.10
Seasoner (wood), 7-31.20
*Seater, restaurant, 5-32.90
*Seaweed gatherer, 6-49.90
*Second (boxing), 5-99.90
*— fixer (carpenter), 9-54.20
SECONDARY EDUCATION TEACHERS, 1-32
*Secretarial subjects, teacher of, 1-32.60
*Secretary of State, 2-02.10
—, stenographic, 3-21.20
*Secretary-general (government administration), 2-02.10
*Secretary-shorthand typist, 3-21.20
*Securities clerk, 3-39.40
— salesman, 4-41.40
*Security officer (guard), 5-82.40
*— patrolman (night watchman), 5-89.40
*Seed dresser (mustard milling), 7-71.90
*— farmer, 6-12.70
*Seismologist, 0-13.20
*Self-service restaurant keeper (working proprietor), 5-10.90
*— store manager, 4-00.30
*Semasiologist, 1-95.20
*Senator, 2-01.10
*Separating-machine operator (grain milling), 7-71.90
*Separator operator (butter making), 7-75.30
— — (centrifugal), 7-43.40
Sericulture worker, 6-29.30
*Sericulturist (working proprietor), 6-12.90
*Serology technician, 0-54.30
*Service adviser (customer after-sales service), 4-31.30
*— mechanic (aircraft engines), 8-44.20
*— station (automobiles) attendant, 4-51.90
*Set decorator, motion pictures, 1-62.30
*— painter, motion pictures, 9-31.90
Setter, gem, 8-80.40
—, knitting-machine, 7-53.30
*Setter, loom, 7-53.20
*Sewage plant operator, 9-69.90
Sewer, hand and machine (general), 7-95.10
*—, —, bookbinding, 9-26.20
—, —, fur, 7-95.40
—, —, garment (except leather and fur), 7-95.20
*—, —, hats and caps, 7-95.90
*—, —, leather, 8-03.40
—, —, leather garment, 7-95.30
*—, —, mattresses, 7-95.90
*—, —, sails, 7-95.90
*—, —, tents, 7-95.90
*—, —, upholstery, 7-95.90
—, leather (hand), 8-03.40
—, — (machine), 8-03.50
*—, machine (leather garments and gloves), 7-95.50
—, shoe (machine), 8-02.50
SEWERS AND EMBROIDERERS, 7-95
Sewing-machine operator, 7-95.50
*Sexton, 5-51.40
*Shactor, 7-73.20
*Shaping-machine operator (metalworking), 8-34.90
*— setter-operator (metalworking), 8-33.90
— — (woodworking), 8-12.50
*Sharebroker, 4-41.40
Sharpener, cutting instruments, 8-35.40
*—, saw, 8-35.50
*Shaver, fur fibre making, 7-62.90
*Shearer, sheep, 6-24.90
*Shearing-machine operator, metal-cutting, 8-39.80
Sheep farm worker, 6-24.30
*— raiser, 6-12.40
*— shearer, 6-24.90
*Sheet roller (steel), 7-22.30
Sheet-metal marker, 8-73.20
*— spinner, 8-39.40
— worker, aircraft, 8-73.80
*— —, copper, 8-73.30
*— —, furniture, 8-73.90
— —, general, 8-73.10
— —, ornamental, 8-73.60
*— —, tin, 8-73.40
— —, vehicle, 8-73.70
SHEET-METAL WORKERS, 8-73
*Shellfish gatherer, 6-49.90
*Shepherd, 6-24.30
*Sherardiser, 7-28.90
*Ship beam and frame erector, 8-74.50
— construction engineer, 0-24.50
*— frame bender and turner, 8-74.90
*— hull and structural steel painter, 9-31.30
— joiner, 9-54.45
*— loader (except liquids and gases), 9-71.20
*— — (liquids and gases), 9-71.40
— pilot, 0-42.40
— plater, 8-74.55
*— plater's helper, 8-74.90
— rigger, 9-72.30
*Ship's boy, 9-81.90
— carpenter, 9-54.55
— chief engineer, 0-43.15
— — steward, 5-20.50
— cook, 5-31.50
— electrician, 8-55.35
*— engine-room mechanic, 8-49.90
*— engineer, 0-43.20
— fireman, 9-82.20
— master (inland waterways), 0-42.20
— — (sea), 0-42.15

Ship's navigating officer, 0-42.30
— oiler and greaser, 9-82.30
— purser, 5-00.40
— radio officer, 3-80.50
— steward, 5-40.60
*Shipping clerk (freight), 3-91.20
SHIPS' DECK OFFICERS AND PILOTS, 0-42
SHIPS' DECK RATINGS, BARGE CREWS AND BOATMEN, 9-81
SHIPS' ENGINE-ROOM RATINGS, 9-82
SHIPS' ENGINEERS, 0-43
Shipwright, metal, 8-74.50
*—, wood, 9-54.40
*Shirt maker (throughout), 7-91.90
Shoe cutter (hand), 8-02.25
*— — (machine), 8-02.20
SHOE CUTTERS, LASTERS, SEWERS AND RELATED WORKERS, 8-02
Shoe finisher, 8-02.55
— patternmaker, 8-02.15
*— polisher (shoemaking), 8-02.90
— repairer, 8-01.30
— sewer (machine), 8-02.50
*Shoe-shiner, 5-99.90
Shoemaker, general, 8-01.10
*—, orthopaedic, 8-01.20
*— raffia and related materials, 9-49-90
*—, sports, 8-01.90
Shoemakers and leather goods makers, 8-0
SHOEMAKERS AND SHOE REPAIRERS, 8-01
*Shooter (oil and gas wells), 7-13.90
*Shop assistant, 4-51.30
*— fitter, 9-54.70
*— manager, 4-00.30
*— porter, 9-71.45
*Shopkeeper, 4-10.30
*Shorer (construction), 9-59.90
*Short-story writer, 1-51.20
*Shorthand typist (general), 3-21.10
*— verbatim reporter, 3-21.30
Shot firer (mine and quarry), 7-11.50
*Shotblaster (castings), 7-29.30
*— (stonecutting), 8-20.90
*Shovelman, hand, 9-99.10
*Showroom supervisor (wholesale trade), 4-21.20
*Shredder operator (chemical and related processes), 7-41.90
Shrinker, textile, 7-56.50
*Shrinking-machine operator (felt hoods), 7-59.90
Shunter, railway, 9-84.40
*Shunting-engine driver, 9-83.90
Shutterer, concrete, 9-52.20
*Shuttle hand, 7-54.90
Shuttle-car operator (mine), 9-79.40
*Sifter (chemical and related materials), 7-43.90
Sightseeing guide, 5-91.30
Sign-painter, 9-39.50
*Signal systems engineer, 0-23.90
*— — technician, 0-34.90
*Signalling equipment fitter (electrical), 8-51.90
*— — — (electronic), 8-52.60
Signalman, railway, 9-84.30
Silk degummer, 7-56.40
— weighter, 7-56.65
Silk-screen printer, 9-29.30
— stencil cutter, 9-29.20
*Silksman (grain milling), 7-71.90
*Silkworm raiser (working proprietor), 6-12.90
*Silver precipitator, 7-12.70
Silverer, mirror, 8-95.70
Silversmith and goldsmith, 8-80.50
*Silvicultural technician, 0-54.90
Silviculturist, 0-53.40
Singer, 1-71.45
*Singing teacher (private), 1-71.45
Sisal farmer, 6-12.20
*Sister, nursing, 0-71.10
*Size maker (paper making), 7-34.90
*Skeiner (thread and yarn), 7-52.50
*Skin and hide classer, 7-61.20
*Skin-peeling-machine operator, 7-73.90
*Skinner (pelts), 6-24.90
*—, animal, 7-73.90
*Skip tender, 9-73.45
*Skiver (uppers preparing), 8-02.30
*Slabbing-mill roller, 7-22.20
Slate and tile roofer, 9-53.20
*— grinder, 8-20.20
*— polisher, 8-20.20
Slaughterer, 7-73.20
*Sleeper cutter, 6-31.90
Sleeping- or pullman-car attendant, 3-60.30
*Slicer, optical glass, 8-91.60
Slip maker, clay, 8-99.40
*Slitter, optical glass, 8-91.60
*Sliver-lap-machine operator, 7-51.40
*Sluiceman, dock, 9-89.90
*Smelter, glass-making, 8-93.20
*Smokehouseman (fish and meat), 7-74.60
*Smoker, latex, 7-49.90
Smoking-pipe maker, 8-19.60
*Snack-bar keeper (working proprietor), 5-10.50
Snuff maker, 7-89.20
*Social historian, 1-92.60
*— pathologist, 1-92.20
*— psychologist, 1-92.30
*— science teacher (third level), 1-31.65
*— security claims examiner, 3-10.10
— studies teacher (second level), 1-32.40
*— welfare teacher (third level), 1-31.90
— — worker, 1-93.20
*— worker, community centre, 1-93.30
— —, delinquency, 1-93.40
— —, general, 1-93.10
— —, psychiatric, 1-93.50
SOCIAL WORKERS, 1-93
Sociologist, 1-92.20
SOCIOLOGISTS, ANTHROPOLOGISTS AND RELATED SCIENTISTS, 1-92
*Sociology teacher (second level), 1-32.40
*— — (third level), 1-31.65
*Sock-knitting-machine operator, 7-55.30
*Socker (shoemaking), 8-02.90
*Soft furnishings maker, 7-96.90
*Soil bacteriologist, 0-52.50
*— botanist, 0-51.20
— mechanics engineer, 0-22.60
— scientist, 0-53.50
Solderer (hand), 8-72.60
*—, dip, 8-72.90
*—, torch, 8-72.90
*Soldering-machine operator, 8-72.90
Sole fitter, 8-02.40
— pressman, 8-02.35
*— sewing machine operator, 8-02.50
*Solicitor, 1-29.10
*Solicitor's clerk, 3-93.40
*Solid-state physicist, 0-12.90
*Solution mixer (chemical and related processes), 7-41.40

*Song writer, 1-59.90
*Soprano, 1-71.45
*Sorter, fur (tailoring), 7-92.40
*—, laundry, 5-60.90
*—, sole, 8-02.40
Sorting clerk, mail, 3-70.20
*Sorting-machine operator, 3-42.30
*Sound-board maker, piano, 9-41.70
*Sound editor, motion picture film, 8-62.90
*— mixer, 8-62.90
— physicist, 0-12.50
*— technician, radio and television broadcasting, 8-61.30
*Sound-amplifying equipment operator, public address, 8-62.30
*Sound-effects technician, 8-62.90
SOUND-EQUIPMENT OPERATORS AND CINEMA PROJECTIONISTS, 8-62
*Sound-proofing insulator, 9-56.40
Sound-recording equipment operator, 8-62.20
*Soya-bean grower, 6-12.20
*Space salesman, advertising, 4-42.30
*Sparring partner (boxing), 1-80.20
*Speaker, 2-01.10
*Special agent (group insurance systems), 4-41.90
SPECIAL EDUCATION TEACHERS, 1-35
Specialised dentist, 0-63.20
SPECIALISED FARMERS, 6-12
Specialised nurse, 0-71.20
— physician, 0-61.20
— surgeon, 0-61.30
*Speech therapist, 0-79.90
*Spice grower, 6-12.90
— miller, 7-71.40
Spindle carving-machine setter-operator, wood, 8-12.80
Spinner, metal, 8-39.40
*—, precious metal, 8-80.90
*—, synthetic fibre, 7-49.35
—, thread and yarn, 7-52.20
SPINNERS AND WINDERS, 7-52
Spinners, weavers, knitters, dyers and related workers, 7-5
*Spinning helper, 7-52.90
*Spinning-frame operator (thread and yarn), 7-52.20
*Spinning-lathe operator, metalworking, 8-39.40
Splicer, rope and cable (general), 9-72.10
Splitter, hide, 7-61.40
*—, sole, 8-02.40
—, stone, 7-12.20
*Sponge hooker, 6-49.90
*Sponge-cake maker, 7-76.30
*Sponge-mottler, ceramics decorating, 8-95.40
*Spooler (thread and yarn), 7-52.50
Sports coach, 1-80.30
*— commentator, 1-59.90
*— editor, 1-59.25
*— equipment maker (wood), 8-19.90
— official, 1-80.40
*— reporter, 1-59.30
Sportsman, professional, 1-80.20
Spotter (dry-cleaner), 5-60.50
*Spout maker, pottery, 8-92.90
*Spray-drier operator (chemical and related processes), 7-42.90
*Spray-painter, buildings, 9-31.20
—, ceramics, 8-95.50
—, except construction, 9-39.30
*—, motor-vehicle assembly, 9-39.90
*Spray-plant operator (dried milk), 7-75.90
Sprayer, metal, 7-28.50
*Spreader operator (concrete paving), 9-74.55
*Spreading-machine operator, rubber, 9-01.90
*Spring maker, 8-39.90
*Squeegeeman (silk-screen printing), 9-29.30
*Squeeze-machine moulder, 7-25.40
*Stable lad, 6-24.90
*Stacker, hand (bricks, timber or other objects), 9-99.10
*Staff records clerk, 3-93.30
*— training organiser, 1-94.20
Stage and studio carpenter, 9-54.30
— — electrician, 8-55.50
— director, 1-73.30
*— manager, 1-74.90
*— producer, 1-74.20
*— set designer, 1-62.90
*Stained-glass glazier, 9-57.50
*Stainer, leather (vat), 7-61.55
*— (wooden furniture finishing), 8-19.55
*Stamp maker (rubber), 9-49.50
*Stamping-press operator, 8-39.60
*Starcher, 5-60.90
*Starter (sport), 1-80.40
Station master, railway, 3-51.10
*— superintendent, telecommunications, 3-59.75
*— telegrapher (railway), 3-80.40
Stationary engine and related equipment operators, 9-6
Stationary engine operator (general), 9-69.10
— jib-crane operator, 9-73.25
STATISTICAL AND MATHEMATICAL TECHNICIANS, 0-84
Statistical clerk, 3-99.20
*— coder, 3-99.30
*— technician, 0-84.90
*— typist, 3-21.40
Statistician, applied statistics, 0-81.30
—, general, 0-81.10
—, mathematical, 0-81.20
STATISTICIANS, 0-81
Statisticians, mathematicians, systems analysts and related technicians, 0-8
*Statistics teacher (third level), 1-31.40
*Stator coil winder (hand), 8-53.50
*— — — (machine), 8-53.40
*Stave log cut-off-saw operator, 7-32.90
*Steam boiler fireman, 9-69.30
*— cleaner, building exteriors, 9-59.75
*— presser (laundry), 5-60.60
*Steam-press operator (textile), 7-56.70
*Steam-roller driver, 9-74.50
*Steel bender and fixer (reinforced concrete), 9-52.30
— erector, constructional, 8-74.40
*Steeper (malting), 7-78.20
Steeplejack, 9-59.30
*Stemmer, tobacco (hand), 7-81.50
*Stemming-machine operator (tobacco), 7-81.60
*Stencil cutter, silk-screen printing, 9-29.20
*— plate maker (printing), 9-24.90
*Stenciller, ceramics decorating, 8-95.40
Stenographer-typist (general), 3-21.10
Stenographers, typists and card- and tape-punching machine operators, 3-2
STENOGRAPHERS, TYPISTS AND TELETYPISTS, 3-21
Stenographic secretary, 3-21.20
Stereotyper, 9-23.20
STEREOTYPERS AND ELECTROTYPERS, 9-23
Sterilising cook, 7-74.20
*Stevedore, 9-71.20
*Steward, aircraft, 5-99.70
—, chief (ship), 5-20.50

*Steward, dining saloon (ship), 5-32.10
—, house, 5-20.40
*—, race track, 1-80.40
—, ship's, 5-40.60
*Sticker-up, pottery, 8-92.90
*Sticker, animal, 7-73.90
STILL AND REACTOR OPERATORS, 7-44
Still operator, batch (chemical processes, except petroleum), 7-44.20
— —, continuous (chemical processes, except petroleum), 7-44.30
*Still-pump operator (petroleum refining), 7-45.30
*Stillman (alcohol, perfume or turpentine), 7-44.90
— (petroleum refining), 7-45.40
*Stipple artist, lithographic, 9-24.90
STOCK CLERKS, 3-91
*Stock jobber, 4-41.90
— records clerk, 3-91.30
*Stockbroker, 4-41.40
*Stocking knitting-machine operator, 7-55.30
*— ribber, 7-55.90
*Stockman (beef cattle worker), 6-24.20
*— (livestock (general) worker), 6-24.10
*— (sheep worker), 6.24.30
*Stoker, ship's, 9-82.20
Stone carver (hand), 8-20.70
— cutter and finisher, 8-20.20
STONE CUTTERS AND CARVERS, 8-20
*Stone dresser, 8-20.20
*— driller, 8-20.90
— engraver, lithographic, 9-24.15
— grader, 8-20.30
*— grinder, 8-20.20
— lathe operator, 8-20.50
— letter cutter (hand), 8-20.60
*— planer, 8-20.20
*— polisher, 8-20.20
*— sawyer, 8-20.20
— splitter, 7-12.20
*Stone-spreader operator (construction), 9-74.90
*Stonehand (printing), 9-21.50
Stonemason (construction), 9-51.40
*Stonemasonry teacher, 1-32.80
Stonework lay-out man, 8-20.40
*Store cashier, 3-31.60
*— detective, 5-89.20
*— manager, 4-00.30
*Storekeeper, 3-91.40
Storeroom clerk, 3-91.40
*Stores department manager (manufacturing company), 2-19.90
Story-teller, 1-73.50
*Stover (tobacco), 7-81.90
*Strainer (chemical and related materials), 7-43.90
*Stratigrapher, 0-13.30
*Straw hat maker, 7-93.90
*— weaver, 9-42.90
*Street mason, 9-51.60
*— sweeper, 9-99.10
— vendor, 4-52.20
STREET VENDORS, CANVASSERS AND NEWSVENDORS, 4-52
*Streetcar driver, 9-85.20
Stretcher, pelt, 7-62.60
*Strike-off machine operator (concrete paving), 9-74.55
*Striker, blacksmith's, 8-31.90
Stringed instrument maker, 9-41.20
*Stringer, piano, 9-41.70
*Strip-tease artist, 1-79.90
Stripper, tobacco (hand), 7-81.50
Stripper, tobacco (machine), 7-81.60
*Stripping-plate-machine moulder, 7-25.40
*Structural engineer (buildings), 0-22.20
*— glazier (general), 9-57.20
— metal marker, 8-74.20
STRUCTURAL METAL PREPARERS AND ERECTORS, 8-74
Structural steel and ship painter, 9-31.30
*— — erector, 8-74.40
— — worker (workshop), 8-74.30
Stucco plasterer, 9-55.30
Stud breeder, 6-12.40
*— groom, 6-24.90
*Student vocational counsellor, 1-94.30
Studio and stage carpenter, 9-54.30
— — electrician, 8-55.50
*— equipment operator, radio and television broadcasting (except sound recording), 8-61.30
*Stump grubber, 9-99.10
*— moulder, 7-25.20
Sub-editor, newspapers and periodicals, 1-59.25
*Sugar boiler, 7-72.50
*— crystalliser operator, 7-72.50
*— grinder, 7-72.90
SUGAR PROCESSERS AND REFINERS, 7-72
*Sugar-beet farm worker, 6-22.20
*— grower, 6-12.20
*Sugar-cane cutter, 6-22.90
— farm worker, 6-22.60
— grinder, 7-72.20
*— planter, 6-12.20
*Sugar-processing equipment operator (continuous refining), 7-72.60
*Suit-case maker, cardboard, 9-10.90
*Sulphitation man (sugar refining), 7-72.40
Supercalender operator, 7-34.40
*Supermarket manager, 4-00.30
*— and general foreman (beverage making), 7-00.65
*— — — (building and construction work), 7-00.75
*— — — (ceramics manufacturing), 7-00.90
*— — — (chemical and related materials processing), 7-00.40
*— — — (chemical products fabrication), 7-00.60
*— — — (clothing manufacturing), 7-00.70
*— — — (construction work), 7-00.75
*— — — (electrical and electronic equipment installation), 7-00.55
*— — — (electrical equipment manufacturing and repairing), 7-00.55
*— — — (electricity generation and distribution), 7-00.80
*— — — (electronic equipment manufacturing and repairing), 7-00.55
*— — — (fellmongering), 7-00.90
*— — — (food processing), 7-00.65
*— — — (gas production and distribution), 7-00.80
*Supervisor and general foreman (glass and ceramics manufacturing), 7-00.90
*— — — (general), 7-00.10
*— — — (leather goods making), 7-00.90
*— — — (machinery manufacturing and repairing), 7-00.50
— — — (metal processing), 7-00.30
*— — — (metal products manufacturing and repairing), 7-00.50
*— — — (mining), 7-00.20
*— — — (paper making), 7-00.90
*— — — (paper products fabrication), 7-00.60

*— — — (pelt dressing), 7-00.90
*— — — (plastics products fabrication), 7-00.60
*— — — (printing and publishing), 7-00.90
*— — — (quarrying), 7-00.20
*— — — (rubber products fabrication), 7-00.60
*— — — (shoemaking), 7-00.90
*— — — (stone cutting and carving), 7-00.90
*— — — (synthetic materials products fabrication), 7-00.60
*— — — (tanning), 7-00.90
*— — — (textile fibre processing and textiles manufacturing), 7-00.70
*— — — (tobacco products manufacturing), 7-00.90
*— — — (water conservation and supply), 7-00.80
*— — — (well drilling), 7-00.20
*— — — (wood processing), 7-00.90
*— — — (wood products making), 7-00.90
Supervisor, air transport service, 3-59.50
—, clerical (general), 3-00.10
—, farm, 6-00.30
—, forest, 6-32.20
*—, housekeeping (except private service), 5-20.20
*—, mail depot, 3-59.80
—, postal services, 3-59.80
—, railway service, 3-59.20
—, road transport service, 3-59.40
—, sales (retail trade), 4-21.30
—, — (wholesale trade), 4-21.20
—, telecommunications service, 3-59.75
SUPERVISORS AND GENERAL FOREMEN, PRODUCTION, 7-00
*Supplies manager, 2-19.90
*Supply clerk, 3-91.40
*— requirements buyer, 4-22.30
*Supreme court judge, 1-22.10
*Surface grinding-machine operator (metalworking), 8-34.65
*— — setter-operator (metalworking), 8-33.70
Surgeon, general, 0-61.10
—, specialised, 0-61.30
*—, veterinary (general), 0-65.10
*Surgical appliance maker, 8-42.45
*— boot and shoe maker, 8-01.20
*— instrument maker and repairer, 8-42.90
*— pathologist, 0-52.60
*Survey statistician, 0-81.30
Surveyor, general, 0-31.10
—, hydrographic, 0-31.40
—, land, 0-31.20
*—, marine, 0-31.40
—, mining, 0-31.30
*—, photographic, 0-31.90
—, quantity, 0-33.20
Surveyor's technician, 0-33.30
SURVEYORS, 0-31
Suspension bridge cable worker, 9-72.60
*Sweater operator, paraffin plant, 7-45.90
*Sweeper, factory or street, 9-99.10
*Swing-bridge operator, 9-73.55
*Switch tender, railway yard, 9-84.40
*Switchboard operator, electricity generating, 9-61.60
— —, telephone, 3-80.20
*Switchgear fitter, electrical, 8-51.40
Synthetic fibre maker, 7-49.35
Systems analyst, 0-83.10
SYSTEMS ANALYSTS, 0-83
*Systems programmer, 0-84.20

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*Table clearer, 5-32.90
*— hand (bread), 7-76.20
*— — (flour confectionery), 7-76.30
*Tablet coater, 7-49.90
*Tabulating-machine operator, 3-42.30
*Tailor, alteration, 7-91.90
—, fur, 7-92.20
—, made-to-measure garments, 7-91.20
—, ready-to-wear garments, 7-91.30
*Tailor's cutter, 7-94.50
TAILORS AND DRESSMAKERS, 7-91
Tailors, dressmakers, sewers, upholsterers and related workers, 7-9
*Taker-off (shoe finishing), 8-02.55
*—, printing press, 9-22.90
*Tally clerk, 3-91.50
*Tamping-machine operator (construction), 9-74.90
*Tandem-mill roller (cold steel), 7-22.40
*Tanker driver, 9-85.60
*Tankman (wood treating), 7-31.30
Tanner, 7-61.45
TANNERS AND FELLMONGERS, 7-61
Tanners, fellmongers and pelt dressers, 7-6
*Tap and die maker, 8-32.20
*— dancer, 1-72.30
Tape- and card-punching machine operator, 3-22.20
*Tape-recording equipment operator, 8-62.20
*Tape-to-card converter operator, 3-42.90
Tapestry maker (hand), 7-54.35
*Tapper, furnace (metal melting), 7-23.90
*—, — (ore smelting and refining), 7-21.90
*—, rubber, 6-23.90
—, tree (except rubber), 6-29.40
Tar-spreading machine operator, 9-74.60
Taster, coffee and tea, 7-77.20
—, wine and liquor, 7-78.60
*Tattooist, 1-62.90
*Tax clerk, 3-39.40
*Taxation economist, 0-90.20
Taxi driver, 9-85.30
Taxidermist, 9-49.20
*Taxonomist, animal, 0-51.30
*—, plant, 0-51.20
Tea blender, 7-77.40
— plantation worker, 6-23.40
*— planter, 6-12.30
*— plucker, 6-23.90
*— taster, 7-77.20
TEA, COFFEE AND COCOA PREPARERS, 7-77
*Teacher, accountancy, 1-31.45
*—, advertising, 1-31.90
—, agricultural science (second level), 1-32.70
—, — — (third level), 1-31.60
*—, agronomy, 1-31.60
*—, animal husbandry, 1-31.60
*—, anthropology, 1-31.65
*—, archaeology (second level), 1-32.40
*—, — (third level), 1-31.65
*—, architecture, 1-31.25
*—, art (second level), 1-32.50
*—, — (third level), 1-31.90
*—, biology (second level), 1-32.30
*—, — (third level), 1-31.30
*—, botany (second level), 1-32.30
*—, — (third level), 1-31.30
*—, bricklaying, 1-32.80
*—, business management, 1-31.45

*Teacher, chemistry (second level), 1-32.30
*—, — (third level), 1-31.20
*—, commerce (third level), 1-31.45
*—, commercial subjects, 1-32.60
*—, computer programming, 1-31.90
*—, construction technology, 1-31.80
*—, crafts, 1-32.80
*—, dancing (second level), 1-32.50
*—, — (third level), 1-31.90
*—, dentistry, 1-31.30
*—, dietetics, 1-31.75
*—, domestic science (second level), 1-32.75
*—, drama (second level), 1-32.50
*—, — (third level), 1-31.90
*—, economics (third level), 1-31.45
—, education, 1-31.55
*—, elementary education, 1-33.20
*—, engineering (second level), 1-32.80
*—, — (third level), 1-31.25
*—, — technology, 1-31.80
*—, family planning, 1-31.90
—, fine arts (second level), 1-32.80
—, first-level education, 1-33.20
*—, food technology, 1-31.90
*—, forensic science, 1-31.90
*—, forestry, 1-31.60
*—, geography (second level), 1-32.40
*—, — (third level), 1-31.65
*—, geology (second level), 1-32.30
*—, — (third level), 1-31.20
*— government (second level), 1-32.40
*—, — (third level), 1-31.65
*—, head, 1-39.40
*—, history (second level), 1-32.40
*—, — (third level), 1-31.65
*—, home economics (third level), 1-31.90
*—, horticulture, 1-31.60
—, industrial arts (third level), 1-31.80
*—, — design, 1-31.80
*—, — technology, 1-31.80
*—, international affairs, 1-31.65
*—, journalism, 1-31.70
—, kindergarten, 1-34.20
*—, language (second level), 1-32.15
*—, — (third level), 1-31.70
—, law, 1-31.50
*—, librarianship, 1-31.90
*—, life sciences (third level), 1-31.30
*—, literature (second level), 1-32.15
*—, — (third level), 1-31.70
*—, marketing, 1-31.90
—, mathematics (second level), 1-32.20
—, — (third level), 1-31.40
*—, medical therapy, 1-31.75
*—, medicine, 1-31.30
*—, metalwork, 1-32.80
*—, meteorological observation, 1-31.90
*—, military science, 1-31.90
*—, mining technology, 1-31.80
*—, music (second level), 1-32.50
—, — (third level), 1-31.90
*—, natural science (second level), 1-32.30
*—, navigation, 1-31.90
*—, nursery school, 1-34.90
*—, nursing (advanced), 1-31.75
*—, — (elementary), 1-32.75
*—, occupational therapy, 1-31.75
— of the blind, 1-35.20
— deaf, 1-35.30
*Teacher dumb, 1-35.90
— mentally handicapped, 1-35.40
*— physically handicapped, 1-35.90
*—, optometry, 1-31.75
*—, osteopathy, 1-31.75
*—, pathology, 1-31.30
*—, pedagogy (second level), 1-32.90
*—, — (third level), 1-31.55
*—, pharmacology, 1-31.30
*—, philology, 1-31.70
*—, philosophy (second level), 1-32.90
*—, — (third level), 1-31.65
*—, photography, 1-32.80
*—, physical education, 1-32.90
*—, — sciences (third level), 1-31.20
*—, physics (second level), 1-32.30
*—, — (third level), 1-31.20
*—, physiotherapy, 1-31.75
*—, political science, 1-31.65
*—, printing, 1-32.80
*—, private (art), 1-61.30
*—, — (dancing), 1-72.30
*—, — (music), 1-71.40
*—, — (singing), 1-71.45
*—, — tutor (first level), 1-33.90
*—, — — (second level), 1-32.90
*—, psychology (third level), 1-31.65
*—, public administration, 1-31.90
*—, radiology, 1-31.75
*—, reading, 1-33.90
*—, religion (second level), 1-32.40
*—, sales methods, 1-31.90
*—, sculpture (second level), 1-32.50
*—, — (third level), 1-31.90
*—, secretarial subjects, 1-32.60
*—, silviculture, 1-31.60
*—, social science (third level), 1-31.65
*—, — studies (second level), 1-32.40
*—, sociology (second level), 1-32.40
*—, — (third level), 1-31.65
*—, statistics, 1-31.40
*—, stonemasonry, 1-32.80
*—, technical drawing, 1-32.80
—, — education (second level), 1-32.80
*—, telecommunications services, 1-31.90
*—, theology, 1-31.65
*—, trade unionism, 1-31.90
*—, transport services, 1-31.90
*—, typing, 1-32.60
*—, veterinary science, 1-31.30
*—, woodwork, 1-32.80
*—, writing, 1-33.90
*—, youth leadership, 1-31.90
*—, zoology (second level), 1-32.30
*—, — (third level), 1-31.30
Teachers, 1-3
TEACHERS, PRE-PRIMARY EDUCATION, 1-34
TEACHERS, PRIMARY EDUCATION, 1-33
TEACHERS, SECONDARY EDUCATION, 1-32
TEACHERS, SPECIAL EDUCATION, 1-35
TEACHERS, UNIVERSITY AND HIGHER EDUCATION, 1-31
*Teaching aid specialist, 1-39.30
*Teaching methods adviser, 1-39.20
*Teaser (glass-making), 8-93.20
*— (textiles), 7-51.90
*Technical drawing teacher, 1-32.80
— education teacher (second level), 1-32.80
— illustrator, 0-32.70
*— information archivist, 1-91.90

*Technical programmer, 0-84.20
— salesman, 4-31.20
TECHNICAL SALESMEN AND SERVICE ADVISERS, 4-31
Technical salesmen, commercial travellers and manufacturers' agents, 4-3
Technical service adviser, 4-31.30
— writer, 1-59.65
Technician, aeronautical engineering, 0-35.30
*—, agronomy, 0-54.90
—, automotive engineering, 0-35.40
—, biological, 0-54.20
—, chemical engineering (general), 0-36.10
—, — — (petroleum), 0-36.20
—, chemistry, 0-14.20
—, civil engineering (general), 0-33.10
—, electrical engineering (general), 0-34.05
—, electronics engineering (general), 0-34.10
—, extractive metallurgy, 0-37.20
*—, forestry, 0-54.90
*—, geology, 0-14.90
*—, marine engineering, 0-35.20
—, mechanical engineering (general), 0-35.10
*—, medical laboratory, 0-54.30
—, mining (general), 0-38.10
*—, motor and engine, 0-35.20
*—, oil and gas well-drilling, 0-38.20
—, physical metallurgy, 0-37.30
—, physics, 0-14.30
*—, power generation and transmission, 0-34.20
—, production engineering, 0-39.20
*—, surveyor's, 0-33.30
—, telecommunications, 0-34.30
*—, television engineering, 0-34.90
—, time and motion study, 0-39.30
*Teemer (metal casting), 7-24.20
*Telecine operator, television broadcasting, 8-61.30
Telecommunications engineer, 0-23.40
*— service operations manager, 2-19.70
— — supervisor, 3-59.75
— technician, 0-34.30
Telegraph and telephone lineman, 8-57.40
*— engineer, 0-23.40
*— installer, 8-56.20
*— mechanic, 8-56.30
*— messenger, 3-70.40
Telegrapher, 3-80.40
*Telegraphic typewriter operator, 3-21.50
*Telephone and telegraph cable jointer, 8-57.50
— — installer, 8-56.20
TELEPHONE AND TELEGRAPH INSTALLERS, 8-56
Telephone and telegraph lineman, 8-57.40
— — mechanic, 8-56.30
TELEPHONE AND TELEGRAPH OPERATORS, 3-80
*Telephone engineer, 0-23.40
— switchboard operator, 3-80.20
*Telephonist, 3-80.20
*Teleprinter operator, 3-21.50
Teletypist, 3-21.50
Television and radio journalist, 1-59.35
— — mechanic, 8-54.20
— — studio equipment operator, 8-61.30
— — transmitting equipment operator, 8-61.20
*— announcer, 1-79.20
— camera operator, 1-63.70
*— critic, 1-51.30
*— director, 1-73.40
*— engineer, 0-23.90
*— engineering technician, 0-34.90
*— producer, 1-74.40
*Television receiver assembler, 8-53.30
*— transmitter fitter, 8-52.20
Teller, bank, 3-31.40
Temperer, 7-26.50
*— (chocolate), 7-76.90
*Tempering furnaceman, glass, 8-93.40
*Template maker, 8-32.90
*Tenoning-machine operator (woodworking), 8-12.90
*Tenor, 1-71.45
*Tent cutter, 7-94.90
*— maker, 7-99.20
*— patternmaker, 7-94.90
*— sewer (hand), 7-95.90
*— — (machine), 7-95.50
*Terminal superintendent, water transport, 3-59.90
Terrazzo worker, 9-52.50
*Test pilot (aircraft), 0-41.30
Tester and inspector, mechanical products, 8-49.85
*— (electrical and electronic equipment), 8-59.20
Textile bleacher, 7-56.15
— calender operator, 7-56.70
— card grinder, 8-35.60
*— designer, 1-62.40
*— drier, 7-56.90
— fuller, 7-56.55
— machinery fitter-assembler, 8-41.50
— machinery mechanic, 8-49.45
— printer, 9-29.50
— shrinker, 7-56.50
*— technician, 0-39.90
*— technologist, 0-29.90
— washer, 7-56.35
— waterproofer, 7-56.60
*Textiles chemist, 0-11.20
*Thatcher, 9-53.60
*Theatre carpenter, 9-54.30
*— electrician, 8-55.50
*Theatrical agent, 1-99.90
*— director, 1-73.30
*— dressmaker, 7-91.90
— producer, 1-74.20
*Theologian, 1-49.90
*Theology teacher, 1-31.65
*Theoretical physicist, 0-12.90
*Therapeutic dietitian, 0-69.10
*Therapist for orientation of the blind, 0-79.90
—, occupational, 0-76.30
Thermite welder, 8-72.30
*Thermodynamicist, 0-12.30
*Thomas furnaceman, 7-21.50
*Thoracic surgeon, 0-61.30
*Thread doubler, 7-52.30
*— spinner, 7-52.20
*— twister, 7-52.40
*— winder, 7-52.50
Threader, loom (hand), 7-54.20
—, — (machine), 7-54.25
*Threshing-machine operator, 6-28.20
Thrower, pottery and porcelain, 8-92.25
*Ticket clerk, 3-31.60
*— writer, bookmaker's, 5-99.20
*Ticketer (machine), 9-71.60
*Tight-rope walker, 1-75.90
Tile and brick kilnman, 8-93.60
— — moulder (hand), 8-92.40
— and slate roofer, 9-53.20
*— layer, composition tiles, 9-59.70
— setter, 9-51.50
Timber cruiser, 6-32.40

*Timber cutter (forestry), 6-31.20
*— drawer (mine), 7-11.90
*— marker, 6-32.90
*— rider, 6-31.40
*— robber (mine), 7-11.90
Timber-carrier driver, 9-79.50
*Timberman (construction), 9-59.90
*— (mine), 7-11.60
Time and motion study engineer, 0-28.30
— — — technician, 0-39.30
*— salesman, broadcasting, 4-42.30
*Timekeeper, 3-39.90
*Tin dipper, 7-28.30
Tinsmith, 8-73.40
Tire builder, 9-02.20
TIRE MAKERS AND VULCANISERS, 9-02
Tire moulder, 9-02.30
— rebuilder, 9-02.40
*— trimmer, 9-02.90
*Tire-tread cutter, 9-02.90
*Tissue technician, 0-54.30
Tobacco blender, 7-81.30
*— cake maker, 7-89.90
— conditioner operator, 7-81.40
— cutting-machine operator, 7-81.70
*— drier operator, 7-81.90
*— farm worker, 6-22.90
*— flavourer, 7-81.90
— grader, 7-81.20
*— planter, 6-12.20
*— plug maker, 7-89.90
TOBACCO PREPARERS, 7-81
Tobacco preparers and tobacco product makers, 7-8
Tobacco stripper (hand), 7-81.50
— — (machine), 7-81.60
*Toddy tapper, 6-29.40
*Toll collector, 3-31.60
*Tone regulator (musical instrument), 9-41.30
Tool and die maker, 8-32.20
*— crib attendant, 3-91.40
*— grinder (except machine tools), 8-35.40
— — (machine tools), 8-35.30
TOOLMAKERS, METAL PATTERN MAKERS AND METAL MARKERS, 8-32
Tools and industrial machinery engineer, 0-24.20
*Toolsmith, 8-31.10
*Topographical surveyor, 0-31.20
*Topper (logging), 6-31.30
*Totalisator operator, 5-99.20
*Toucher-up, ceramics decorating, 8-95.90
*Tower construction engineer, 0-22.90
Tower-crane operator, 9-73.27
Town planner, 0-21.30
*Toxicologist, 0-52.70
*Toymaker (metal), 9-49.90
*— (stuffed toys), 9-49.40
*— (wood), 9-49.90
*Tracer, ceramics decorating, 8-95.90
*Trackman, railway, 9-99.10
*Traction engineer (electric power), 0-23.90
*Tractor driver (farm), 6-28.20
*— mechanic, 8-43.90
*Tractor-crane operator, 9-73.30
*Traffic clerk (freight), 3-91.20
*— controller, air, 3-59.60
*— department manager, transport operations, 2-19.60
*— engineer, 0-29.50
*— inspector, passenger road transport service, 3-59.45
*— —, railway, 3-59.30
Traffic planner, 0-29.50
*— superintendent, road transport, 3-59.40
*— —, telecommunications, 3-59.75
*— supervisor, airline, 3-59.50
*Trailer-truck driver, 9-85.60
*Train brakeman, freight, 9-84.20
*— —, mine and quarry, 9-84.50
— dispatcher, 3-59.25
*— driver, 9-83.20
*— — (underground or elevated train), 9-83.50
*— driver's assistant, 9-83.40
*— shunter, 9-84.40
*Trainer (sport), 1-80.30
—, physical, 1-80.50
*Trainman, railway yard, 9-84.40
*Tram conductor, 3-60.40
— driver, 9-85.20
*Transferrer, ceramics decorating, 8-95.40
—, direct lithographic, 9-24.50
—, photo-mechanical, 9-25.40
*Transformer coil winder (hand), 8-53.50
*— — — (machine), 8-53.40
*— fitter, 8-51.30
Translator, 1-95.30
*Transmission engineer (electric power), 0-23.30
*— mechanic, motor vehicles, 8-43.90
Transmitting equipment operator, radio and television, 8-61.20
Transport and communications supervisors, 3-5
TRANSPORT CONDUCTORS, 3-60
Transport equipment operators, 9-8
Transport operations manager, 2-19.60
*— service inspector, buses and trams, 3-59.45
— — —, railway, 3-59.30
*Trapeze artist, 1-75.50
Trapper and hunter, 6-49.60
Travel agency clerk, 3-94.40
— guide, 5-91.20
Traveller, commercial, 4-32.20
*Trawler crewman, 6-41.20
*Tread cutter, tire-making, 9-02.90
*Treater (petroleum refining), 7-45.20
Tree feller and bucker, 6-31.20
*— marker, 6-32.90
*— planter (forestry), 6-32.90
— tapper (except rubber), 6-29.40
*— — (rubber), 6-23.90
Trench-digging-machine operator, 9-74.25
*Trichologist, 5-70.90
*Tricycle driver (not motorised), 9-89.50
*Trimmer, board, 7-32.90
*—, fur, 7-92.90
*—, hat, 7-93.90
*—, pelt, 7-62.40
*—, shoe finishing, 8-02.55
*—, tire, 9-02.90
*Tripe dresser, 7-73.90
*Trolley-bus conductor, 3-60.40
*— driver, 9-85.40
*Truck dispatcher, 3-59.40
*— driver (local transport), 9-85.50
*— — (long-distance transport), 9-85.60
*— loader, 9-71.30
*— mechanic, 8-43.30
*— operator, dumper, 9-79.30
*— —, fork-lift, 9-79.20
*— —, shuttle-car (mine), 9-79.40
*Trumpeter, 1-71.40
*Tub moulder, 7-25.20

*Tube coremaker, 7-25.60
*— drawer, seamless, 7-27.40
*— extruder operator (metal), 7-27.50
— maker, glass, 8-91.76
*Tube-filling machine operator, 9-71.55
*Tubman (chemical and related processes), 7-42.20
*Tubular heating man (condensed milk), 7-75.90
*Tuckpointer, 9-51.90
*Tufter, hand (carpet weaving), 7-54.90
*Tugboatman, 9-81.90
*Tulip farmer, 6-12.70
*Tumbler, 1-75.40
*Tuna boat crewman, 6-41.20
Tuner, musical instrument, 9-41.80
*—, vehicle engine, 8-43.90
*Tunnelling-machine operator (construction), 9-74.90
Turbine fitter-assembler (except aircraft and marine), 8-41.30
— mechanic (except aircraft and marine turbines), 8-49.25
— operator (power-station), 9-61.50
*Turf layer, 6-27.90
*Turkey farmer, 6-12.60
*Turkish bath attendant, 5-70.70
*Turner, 8-33.20
*—, pottery and porcelain, 8-92.90
*—, stone, 8-20.50
—, wood, 8-12.30
*Turnstile collector, 3-31.60
*Turpentine distiller, 7-44.90
*Turret-lathe operator (metalworking), 8-34.20
*— setter-operator (metalworking), 8-33.20
*Tutor, private (primary education), 1-33.90
*—, — (secondary education), 1-32.90
— — (third level)
See Teachers (code to subject specialisation)
*Twiner (thread and yarn), 7-52.40
Twister, 7-52.40
*Twisting helper, 7-52.90
*Twisting-machine operator (thread and yarn), 7-52.40
Type-casting-machine operator, 9-21.40
*Type-setter, hand composing, 9-21.20
*—, linotype, 9-21.30
*—, photo-type, 9-21.55
*Type-setter-perforator operator, 9-21.35
*Typewriter mechanic, 8-49.65
*Typing teacher, 1-32.60
Typist, 3-21.40
*Typist-clerk, 3-21.40
Typist-stenographer (general), 3-21.10
*Typograph operator, 9-21.30
*Typographical designer, 1-62.20

U

*Ultrasonic cleaner (metal), 7-29.40
*Umbrella cutter, 7-94.90
— maker, 7-99.30
*— patternmaker, 7-94.90
*Umpire (sport), 1-80.40
*Under-secretary, government department, 2-02.10
*Underground cable layer, 9-59.90
*— miner (general), 7-11.05
— or elevated train driver, 9-83.50
— timberman, 7-11.60
Undertaker, 5-92.20
*Undertaker's assistant, 5-92.90
UNDERTAKERS AND EMBALMERS, 5-92
Underwater worker, 9-59.60
Underwriter, 1-99.50
*Universal boring-machine setter-operator (metal boring), 8-33.50
*— grinding-machine setter-operator (metalworking), 8-33.70
*— milling-machine setter-operator (metalworking), 8-33.30
UNIVERSITY AND HIGHER EDUCATION TEACHERS, 1-31
Upholsterer, furniture, 7-96.20
*—, soft furnishing, 7-96.90
—, vehicle, 7-96.30
UPHOLSTERERS AND RELATED WORKERS, 7-96
*Upholstery cutter, 7-94.90
*— patternmaker, 7-94.90
*— sewer (hand), 7-95.90
*— — (machine), 7-95.50
Uppers preparer, 8-02.30
*Urban planner, 0-21.30
*Usher, 5-99.90

V

*Vaccinator (poultry), 6-26.90
*Vacuum conditioner operator (tobacco), 7-81.40
*— oven operator (foodstuffs), 7-74.40
*— pan operator (chemical and related processes), 7-44.50
*— — — (condensed milk), 7-75.90
*— — — (food essences), 7-74.90
*Valet service boy (hotel), 5-40.90
*— (private service), 5-40.30
*Value engineer, 0-28.90
*Valuer, 4-43.30
Van and lorry driver (local transport), 9-85.50
— — — (long-distance transport), 9-85.60
*Varitypist, 3-21.90
*Varnisher (wooden furniture finishing), 8-19.55
*Varnishing-machine operator (paper making), 7-34.90
*Vat dyer (leather), 7-61.55
*Vatman (chemical and related processes), 7-42.20
*Vegetable cook (chef), 5-31.30
— farm worker, 6-22.20
*— farmer (except market garden), 6-12.20
*— — (market garden), 6-12.70
*— preparer, 5-31.90
Vehicle electrician, 8-55.40
— glazier, 9-57.60
— loader, road and railway, 9-71.30
— sheet-metal worker, 8-73.70
— upholsterer, 7-96.30
*— washer, 9-99.10
*Vehicle-body builder (wood), 8-19.20
Veneer applier, 8-19.50
— cutter, 7-32.40
*— sheet gluer, 7-32.90
*Veneer-press operator, 7-32.60
Ventilation and heating equipment operator, 9-69.80
*— engineering technician, 0-35.50
*Ventriloquist, 1-79.90
Verbatim reporter, 3-21.30
Verger, 5-51.40
*Vertical boring-machine operator (metalworking), 8-34.50
*— — setter-operator (metal boring), 8-33.50
*— drilling-machine operator (metalworking), 8-34.60
*— — setter-operator (metalworking), 8-33.60
*— glass-drawing-machine operator, 8-91.40
Veterinarian, general, 0-65.10
—, public health, 0-65.20

VETERINARIANS, 0-65
*Veterinary aid, 5-99.60
— assistant, 0-66.10
VETERINARY ASSISTANTS, 0-66
*Veterinary bacteriologist, 0-52.50
*— clinic attendant, 5-99.60
*— epidemiologist, 0-65.90
— pathologist, 0-52.65
*— science teacher, 1-31.30
*— surgeon (general), 0-65.10
*Vibrating-screed operator (concrete paving), 9-74.55
*Vicar, 1-41.20
*Video operator (television broadcasting), 8-61.30
*— recording equipment operator, 8-61.30
*Viewer (quality inspection), 9-49.80
Vinegar maker, 7-78.70
Vineyard worker, 6-23.30
*Viniculturist (working proprietor), 6-12.30
*Violin maker and repairer, 9-41.20
*Violinist, 1-71.40
*Viscoliser (dairy products), 7-75.90
*Visual teaching aid specialist, 1-39.30
Vocal group conductor, 1-71.50
*Vocalist, 1-71.45
Vocational guidance counsellor, 1-94.30
*Voicer, organ, 9-41.80
*Volcanologist, 0-13.20
*Vulcaniser (rubber goods, except tires), 9-01.90

W

Wages clerk, 3-39.30
*— section supervisor, 3-00.90
**Wagon-lit* car attendant, 3-60.30
Waiter, formal service, 5-32.30
—, general, 5-32.10
—, head, 5-32.20
*—, railway dining car, 5-32.10
—, wine, 5-32.40
WAITERS, BARTENDERS AND RELATED WORKERS, 5-32
*Wall tiler, 9-51.50
*Wallpaper hanger, 9-59.25
— printer, 9-22.70
*Warden, game or bird sanctuary, 6-49.90
*—, probation home, 1-93.40
*Warder, prison, 5-89.30
Wardrobe mistress (stage and studio), 5-40.70
*Ware emptier, ceramics, 8-93.90
*Warehouse clerk, 3-91.40
*— department manager, 2-19.90
— porter, 9-71.45
*Warehousing company manager, 4-00.20
*Warp knitting-machine operator, 7-55.90
Warper, beam, 7-54.15
*Warping-machine operator (textile weaving), 7-54.15
*Washer, chemical and related materials, 7-43.90
*—, hand, 5-60.90
*—, machine (laundry), 5-60.20
*— operator (chemical and related processes), 7-49.90
*— — (minerals), 7-12.90
*— —, textile fibres, except wool, 7-51.90
*— —, wool fibre, 7-51.20
—, textile, 7-56.35
*—, vehicle, 9-99.10
*Waste treatment operator (radioactive materials), 7-49.40
*Watch adjuster, 8-42.25
— clock assembler, 8-42.20
— — repairer, 8-42.25
WATCH, CLOCK AND PRECISION-INSTRUMENT MAKERS, 8-42
*Watchcase vulcaniser (tires), 9-02.30
Watchman, 5-89.40
*Water bailiff, 6-49.90
*— pumpman, 9-69.40
— treatment-plant operator (waterworks), 9-69.50
*Waterman, 9-81.90
Waterproofer, textile, 7-56.60
*—, textile (oil), 9-49.90
*Waterproofing-machine operator (textile), 7-56.60
*Waxer, glass sandblasting, 8-94.90
*Waxing-machine operator (paper making), 7-34.90
*Weather forecaster, 0-13.40
*Weaver, basket, 9-42.20
—, carpet (hand), 7-54.55
—, — (machine), 7-54.60
—, cloth (hand), 7-54.30
—, — (machine, except Jacquard loom), 7-54.40
—, Jacquard, 7-54.45
—, lace (machine), 7-54.50
*—, tapestry (hand), 7-54.35
WEAVERS AND RELATED WORKERS, 7-54
WEAVING- AND KNITTING-MACHINE SETTERS AND PATTERN-CARD PREPARERS, 7-53
*Weaving-loom fixer, 7-53.20
*Weaving-machine operator (except Jacquard looms), 7-54.40
*— operator, Jacquard, 7-54.45
*Web pressman (except rotogravure), 9-22.30
*Weigher (sugar confectionery), 7-76.60
Weighing clerk, 3-91.50
*Weight analyst (aircraft manufacture), 0-84.90
*Weights and measures inspector, 3-10.10
*Welder, acetylene, 8-72.15
*—, butt, 8-72.35
*—, contact, 8-72.35
—, electric arc (hand), 8-72.20
—, — — (machine), 8-72.25
*—, flash, 8-72.35
—, gas, 8-72.15
*—, — and electric (general), 8-72.10
—, hand (electric arc), 8-72.20
—, machine (electric arc), 8-72.25
*—, oxy-acetylene, 8-72.15
—, resistance, 8-72.35
*—, seam, 8-72.35
*—, spot, 8-72.35
—, thermite, 8-72.30
WELDERS AND FLAME-CUTTERS, 8-72
*Welfare officer for the deaf, 1-93.90
*— — physically handicapped, 1-93.90
*— worker, 1-93.20
*Well acidising treater, 7-13.70
*— borer (except oil and gas), 7-13.80
— cementer (oil and gas), 7-13.50
— digger, 9-59.55
*— driller (water well), 7-13.80
— — and borer (except oil and gas wells), 7-13.80
— —, cable (oil and gas), 7-13.40
— —, rotary (oil and gas), 7-13.30
WELL DRILLERS, BORERS AND RELATED WORKERS, 7-13
Well puller (oil and gas wells), 7-13.60
*— sinker, 9-59.55
Well-drilling rigger, oil and gas, 9-72.50
Wet-end machine operator (paper making), 7-34.20
Whale hunter, 6-49.40
*Whaler crewman, 6-49.40
*Wharf superintendent, 3-59.90

*Wharfinger, 3-59.90
*Wharfman (docker), 9-71.20
Wheat farm worker, 6-22.30
*— farmer, 6-12.20
*Wheelwright, 8-19.25
*Whip maker, 8-03.90
*White-lead maker, 7-49.90
*Whitewasher, 9-31.90
*Wholesale company manager, 4-00.20
— trade salesman, 4-51.20
*Wholesaler (working proprietor), 4-10.20
Wicker furniture maker, 9-42.50
*Wig dresser, 5-70.90
*Wigmaker, 9-49.90
*Wild animal trainer, 1-75.90
*— life warden, 6-49.90
*Willeyer, 7-51.90
*Wilton weaver, 7-54.60
Winch operator, 9-73.50
Winder (yarn), 7-52.50
—, coil (hand), 8-53.50
—, — (machine), 8-53.40
*Winding engineman, mine, 9-73.40
*— helper (yarn), 7-52.90
*Winding-machine operator (thread and yarn), 7-52.50
Window cleaner, 5-52.30
*— display designer, 1-62.50
Wine and liquor taster, 7-78.60
*— blender, 7-78.90
*— clarifier, 7-78.90
*— racker, 7-78.90
*— steward, 5-32.40
— waiter, 5-32.40
— worker, 7-78.50
*Winegrower, 6-12.30
*Winnower, cocoa-bean, 7-77.90
Wire drawer (hand), 7-27.20
— — (machine), 7-27.30
*— goods maker, 8-39.90
*— spinner and cable squeezer (bridge building), 9-72.60
Wire-coating machine operator, 7-28.40
*Wire-recording-equipment operator, 8-62.20
*Wireman, electric power (overhead), 8-57.20
*—, — power (underground), 8-57.90
*—, — traction (overhead), 8-57.30
*—, telephone and telegraph, 8-57.40
*Wireworker, 8-39.90
Woman's hairdresser, 5-70.20
*Wood bender, 8-19.90
*— block floor layer, 9-54.90
— boatbuilder, 9-54.50
— carver, 8-19.45
*— distillation operator, 7-44.60
— grader, 7-32.70
— grinder, 7-33.20
— pattern maker, 8-19.35
Wood preparation workers and paper makers, 7-3
Wood seasoning worker, 7-31.20
*— shavings machine operator, 7-32.90
— shipwright, 9-54.40
— spindle carving-machine setter-operator, 8-12.80
*— technician, 0-39.90
*— technologist, 0-29.90
WOOD TREATERS, 7-31
Wood treating worker, 7-31.30
— turner, 8-12.30
—, rubber or linoleum block engraver (hand), 9-24.30
*Wood-harvesting machine operator, 6-31.90
Wood-lathe setter-operator, 8-12.40
Wood-planing-machine setter-operator, 8-12.70
Wood-routing-machine setter-operator, 8-12.60
Wood-shaping-machine setter-operator, 8-12.50
*Wood-shingle roofer, 9-53.90
*Woodcutter (forest), 6-31.90
Wooden furniture finisher, 8-19.55
— model maker, 8-19.40
*— tank maker, 8-19.30
*Woodman, 6-32.30
Woodwind instrument maker, 9-41.30
*Woodwork teacher, 1-32.80
Woodworking machine operator (general), 8-12.08
WOODWORKING MACHINE OPERATORS, 8-12
Woodworking machine setter (general), 8-12.05
— — setter-operator (general), 8-12.10
— machinery fitter-assembler, 8-41.55
— — mechanic, 8-49.50
Wool carboniser, 7-56.45
— scourer, 7-51.20
*Woolgrower, 6-12.40
*Work study engineer, 0-28.30
*— — technician, 0-39.30
Workers in religion, 1-4
Working proprietor (café, bar and snack bar), 5-10.50
— — (guest house), 5-10.40
— — (hotel and restaurant), 5-10.20
*— — (motel), 5-10.20
— — (restaurant), 5-10.30
— — (retail trade), 4-10.30
— — (wholesale trade), 4-10.20
WORKING PROPRIETORS (CATERING AND LODGING SERVICES), 5-10
WORKING PROPRIETORS (WHOLESALE AND RETAIL TRADE), 4-10
*Works foremen
See Supervisors and general foremen, production
*— manager (production department), 2-12.10
*Wrapper (hand), 9-71.50
*— (machine), 9-71.55
*Wrapping-machine operator (cardboard box covering), 9-10 90
*Wrecker, buildings, 9-59.45
*Wrestler, 1-80.20
*Writer, 1-51.20

X

*Xerography cameraman (offset printing), 9-25.90
*X-ray film developer, 9-27.90
— technician, medical, 0-77.10
*Xylophone maker, 9-41.90

Y

*Yacht crewman, 9-81.90
*— skipper, 0-42.90
*Yard clean-up man, 9-99.10
*— coupler, 9-84.40
*— locomotive driver, 9-83.90
*Yardmaster, railway, 3-59.35
*Yarn doubler, 7-52.30
— dyer, 7-56.20
*— spinner, 7-52.20
*— twister, 7-52.40
*— washer, 7-56.35
*— winder, 7-52.50
Yeast maker, 7-78.40
*Youth employment officer, 1-94.30
*— leader, 1-93.30

Z

*Zinc dipper, 7-28.30
*Zipper slide-fastener maker, 9-49.90
*Zoo keeper, 6-24.90
Zoologist, 0-51.30
*Zoology teacher (second level), 1-32.30
* — — (third level), 1-31.30